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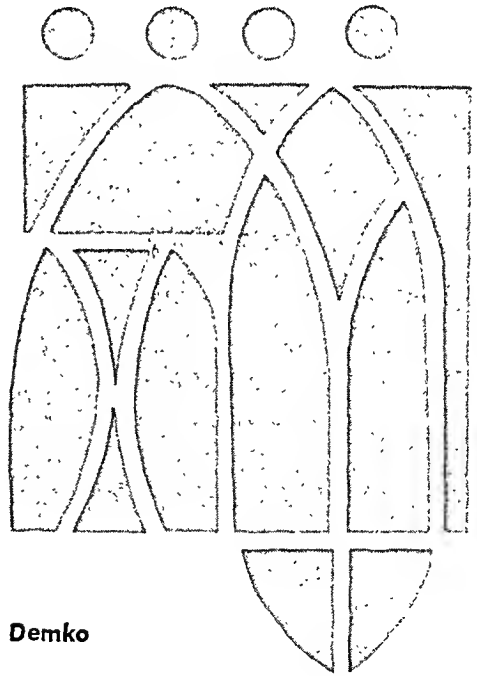
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Europe and the Soviet Union

SECOND EDITION



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When the first edition of this book appeared in the spring of 1953, Stalin had recently died; the ratification of the treaty of the European Coal and Steel Community had not been completed, and the European Economic Community was no more than a faint hope in the minds of the most sanguine. Generous American aid had been pouring into Europe for several years, but ruins were still widespread, and recovery far from complete. Above all the division of the continent was as rigid as it ever became. East was east, and west was west; communication between them was slight, and commerce and travel were negligible. Twelve years later this has changed. The barriers between the two Europes are visibly weakening. Over much of the continent, high prosperity has succeeded the distress and poverty of the immediate postwar years, and the fulfillment of the Coal and Steel Community has led on to the high promise of the Economic Community and hopes even of a politically federated Europe.

It is a prosperous and rapidly changing Europe whose geography is studied in this book, and the rate of change is such that all statistics are out-dated as soon as they are published. The reader is warned that more up-to-date, if not wholly current, data can be obtained from the statistical annuals cited on page 77. Trade figures are given for all European countries, according to the accepted international classification. Some countries of eastern Europe do not, however, conform to this practice, and it has proved impossible to tabulate their data in a way that allows close comparison with those of western countries.

The first edition of this book in effect stopped at the Ural Mountains. This division, never more than a convention, is now quite meaningless. The present edition presents a more adequate treatment of the Soviet Union, taking into account the whole of that vast country, and not merely the small segment which is still referred to as "European Russia." This section, consisting of the last three chapters, has been written by Prof. George J. Demko, who has lived and travelled widely in the Soviet Union. The author is deeply grateful to Mr. Brian R. Goodey for his help in the final stages of preparing this book.

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EUROPE AND THE SOVIET UNION

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part one

Europe

The Land

Europe is the most irregularly shaped of the greater land masses of the globe. It is a peninsula, with many subsidiary peninsulas, projecting westward from the continent of Asia. Across its base in European Russia it measures about 1,500 miles from north to south. It narrows westward and is only 750 miles wide between the Black Sea and the Baltic. Beyond this "waist" it widens again, only to contract to 250 miles between the Mediterranean Sea and the Bay of Biscay. The lesser peninsulas around its margin make up Scandinavia, Denmark, Greece, and Italy. Close to the continent is an immense number of islands—large and populous such as Great Britain, small and rocky like those off the Norwegian coast and the Isles of Greece. Europe is enclosed on all sides except the east by the sea, and stretches of water penetrate between the peninsulas deep into the land. Nowhere in western or central Europe is it possible to escape the influence of the sea; nowhere is the sea more distant than about 400 miles.

Most of Europe lies in temperate latitudes. Its most southerly point, the southern tip of Spain, is 36° north of the Equator, about the latitude of Nashville, Tennessee. Its most northerly point, the North Cape of Norway, lies at 71° , as far north as the most northerly point on the mainland of

Canada. In contrast with North America, however, only a very small area of Europe lies within the Arctic Circle.

Europe is, with the exception of Australia, the smallest of the continental divisions into which the land surface of the globe is conventionally divided. Its area, including European Russia, of about 3,800,000 square miles, is a little more than that of the United States and less than half that of the Soviet Union. But within this area it has a rich variety of landscape and relief, of climate, soil, and resources. The aspect of the land is generally varied, and only in Russia are there large areas that are physically uniform. Along with the variety of rock and structure there goes a diversity of mineral deposits and of agricultural land. It is in this richness and variety that we may look for at least a partial explanation of the precocity of European cultural, economic, and political developments.

We must learn to see "for ourselves that variegated mosaic of the world's surface which a bird sees in its migration, that difference between the district of the gentian and of the olive which the stork and the swallow see far off, as they lean upon the sirocco wind. Let us, for a moment, try to raise ourselves even above the level of their flight, and imagine the Mediterranean lying beneath us like an irregular lake, and all its ancient promontories sleeping in the sun: here and there an angry spot of thunder, a grey stain of storm, moving upon the burning field; and here and there a fixed wreath of white volcano smoke, surrounded by its circle of ashes; but for the most part a great peacefulness of light, Syria and Greece, Italy and Spain, laid like pieces of golden pavement into the sea-blue, chased, as we stoop nearer to them, with bossy beaten work of mountain chains, and glowing softly with terraced gardens, and flowers heavy with frankincense, mixed among masses of laurel, and orange, and plummy palm, that abate with their grey-green shadows the burning of the

Carpathians stretch from the mouths of to those of the Volga, seen through the of rain-cloud . . .; and then, farther to see the earth heave into mighty masse rock and heathy moor, bordering with waste of gloomy purple that belt of wood, and splintering into irregular islands amidst the northern seas, beaten and chilled by ice-drift, and tormented pulses of contending tide, until the last forests fail from among the hills to the hunger of the north wind bites them into barrenness. . . . And, having once in thought its gradation of the zoned earth in all its material vastness, let us nearer to it. . . ."¹

Let us examine more closely the detail of the terrain and of its people and their work. There is a pattern in the immense variety of Europe which we can learn to see this pattern as a whole and shall the more easily fit the detail of the parts. We divide Europe into five great physical divisions (Fig. 1-1), each the product of a long epoch in the geological history of Europe. In the north is the oldest, the mountainous mass of Scandinavia, which extends eastward into Finland. South of this is the youngest, the lowlands of northern Europe. The great belt stretching across Europe from west to east, from France to Poland, is a belt of mountains older than the plain to their north, as old as the Scandinavian mountains. The great region of central Europe passes south of the Alps, which form one of the most important of the major physical regions. The Alpine system is very much more extensive than the mountains commonly called the Alps; it reaches from Spain to Russia and covers the western half of the Mediterranean Sea.

¹John Ruskin, *The Stones of Venice*, Vol. I, London, 1853. This is not strictly true; "green" does not characterize the Russian or the Volga region.

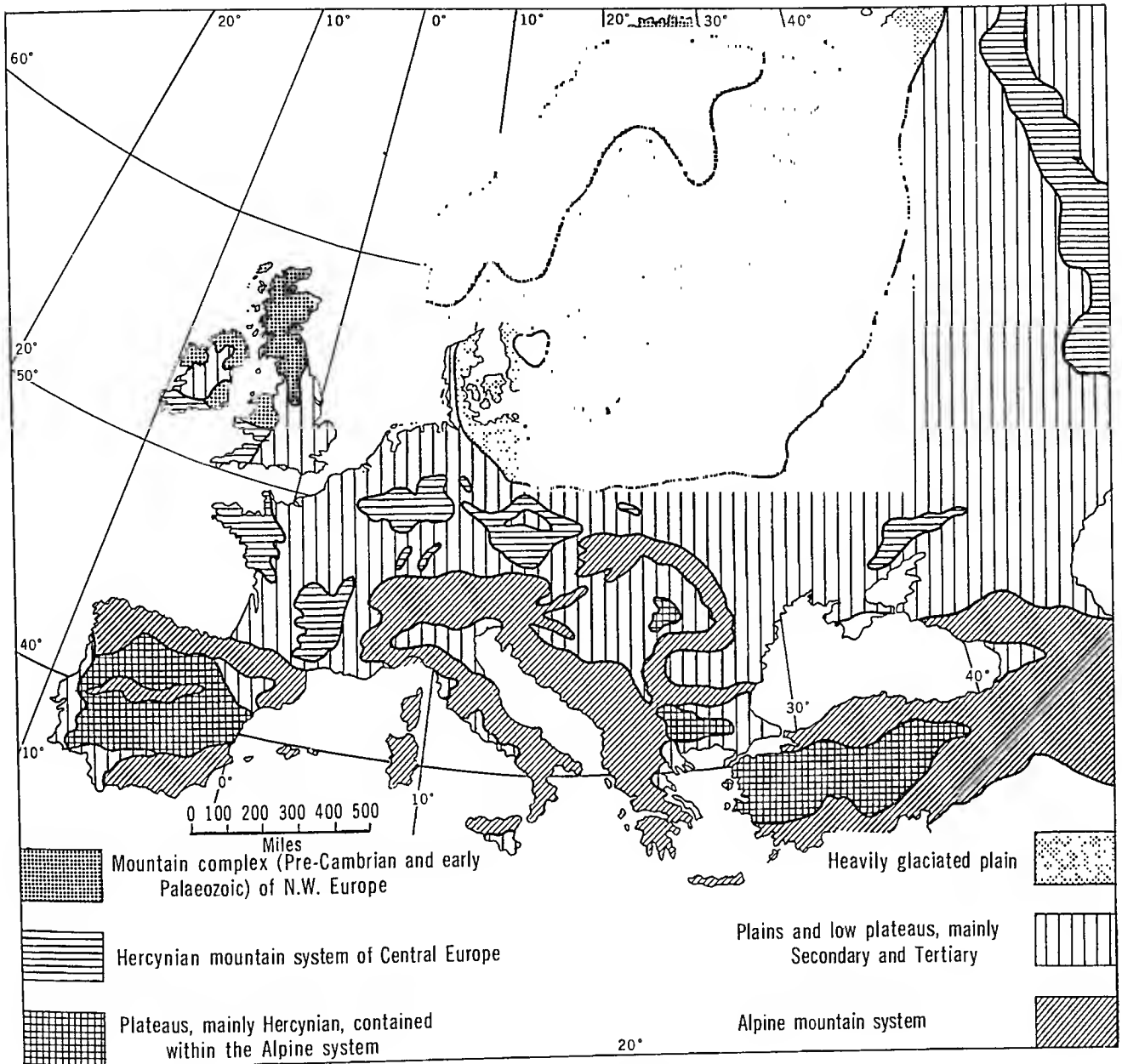


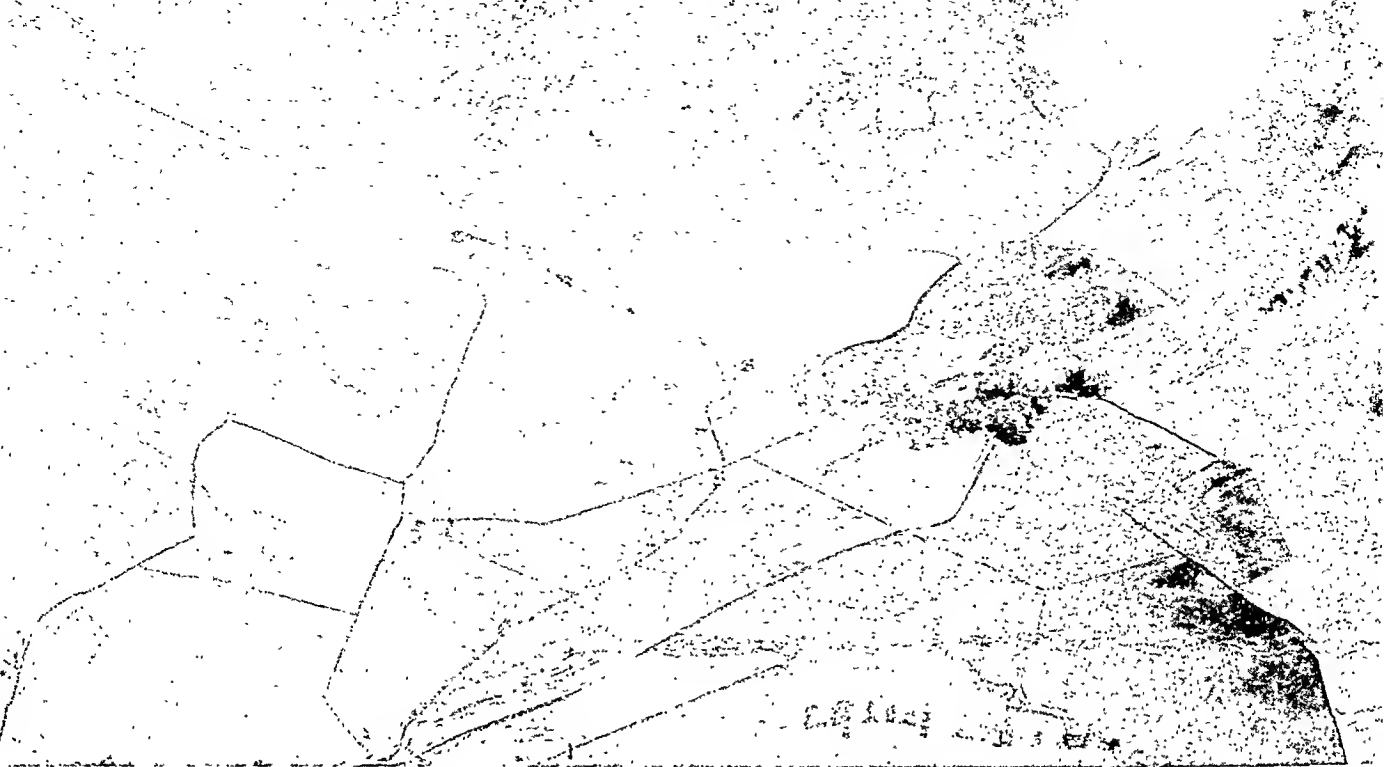
FIGURE 1-1. Physical regions of Europe.

around and encloses tabular masses of older rock, which lie like fragments of central Europe caught up and held within its folds: the Meseta of Spain, the plateau of Asia Minor, the Rhodope Mountains, and several others.

Lastly, to the south of the Alpine mountain system and of the Mediterranean Sea is the low plateau which makes up the northeastern part of Africa. We must look more closely at each of these divisions.

MOUNTAINS OF SCANDINAVIA AND THE NORTHWEST OF EUROPE

The region of the mountains of Scandinavia and the northwest of Europe includes Norway, most of Sweden and Finland, the north and west of the British Isles, and the islands such as Iceland and Spitzbergen which lie far out in the North Atlantic Ocean. It is built of ancient rocks, whose hardness has led in some areas to the develop-



The rolling uplands of southern Scotland, covered with a moorland vegetation complex, with extensive areas of acid peat. Small enclosures, mainly for improved grazing, in the valley, and a farm protected by a windbreak of deciduous trees. (Aerofilms.)

ment of a rugged topography. Mountains form the backbone of the Scandinavian peninsula. On the northwest they drop steeply to the indented coast of Norway but more gently toward the east to the Swedish coast of the Baltic Sea. Toward the east they extend into Finland. During the last Ice Age, glaciers covered this region. The rock surfaces were rounded and polished by the ice, and the soil was largely removed and spread over the lower lands to the south. The region is one of thin, infertile soil and sparse population. Nevertheless, minerals occur in these old rocks, and the mining of iron and of lead, zinc, and nickel is important.

The hills of the northern and western parts of the British Isles are similar. The mountains are not so high as in Scandinavia, but the relief is strong, soils poor, and population small.

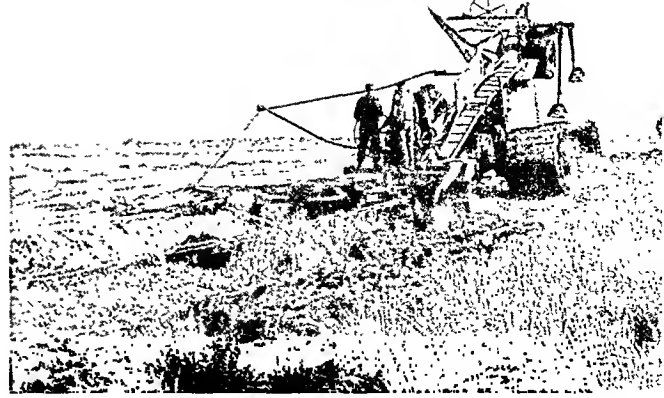
NORTH EUROPEAN LOWLAND

The North European Lowland, an area of low-lying and undulating plain, extends from the Pyrenean Mountains bordering southern France

through Germany to Russia. It includes most of England as well as Denmark and southern Sweden. In few places does it exceed 1,000 feet above sea level. Its hills are gentle. Movement over them is usually not difficult in any direction, and there are few areas that are too steep for cultivation. This plain covers about half of France. It narrows in Belgium, the Netherlands, and northwestern Germany but then broadens eastward. Most of Poland lies within the plain, which then widens yet more to include almost all of European Russia as well as parts of Finland and Romania.

The plain may be divided into that part covered by the great glaciers which spread southward from Scandinavia during the Ice Age and that part which either remained free from glaciation, or has since lost its cover of glacial deposits by erosion. Over much of glaciated Europe the ice sheets left, when they melted away, a deposit of moraine or boulder clay made up of gravel, sand, and clay which the ice had brought from the north. Large areas, particularly in north Germany, are today covered by infertile sands and gravels which originated in this way. Other areas, especially in

The poorly drained plain of north Germany, consisting alternately of sand and peat. The photograph shows the cutting of a drainage ditch. (*Presse- und Informationsamt, West Germany.*)



Sweden, Germany, and Poland, were covered in a similar way with heavy clay and contain many shallow lakes and swamps. The glaciated plain is seldom fertile. The clays are often too heavy and the sand and gravel too light for profitable cultivation. Large areas remain under grass or are forested, and the average agricultural population is less than in the unglaciated region of the plain.

The southern limit of the ice sheets was across southern England and the Low Countries. They covered most of the North German and Polish Plains and spread far into European Russia. But over large areas of glaciated Europe, the thin cover of glacial deposits has been stripped away by erosion and the "solid" geology exposed.

South of the glacial limit the plain is built up mainly of limestone, sandstone, and clay. The limestone and sandstone, being somewhat harder than the clay, tend to form the low hills which characterize southern England and much of France, whereas the clay, more readily worn away by rivers, forms lower land. The unglaciated part of the North European Lowland is largely made up of low, rounded or flat-topped hills and broad, shallow valleys. Most of the land is fit for cultivation. Productivity is high, and the agricultural population is greater than in glaciated regions.

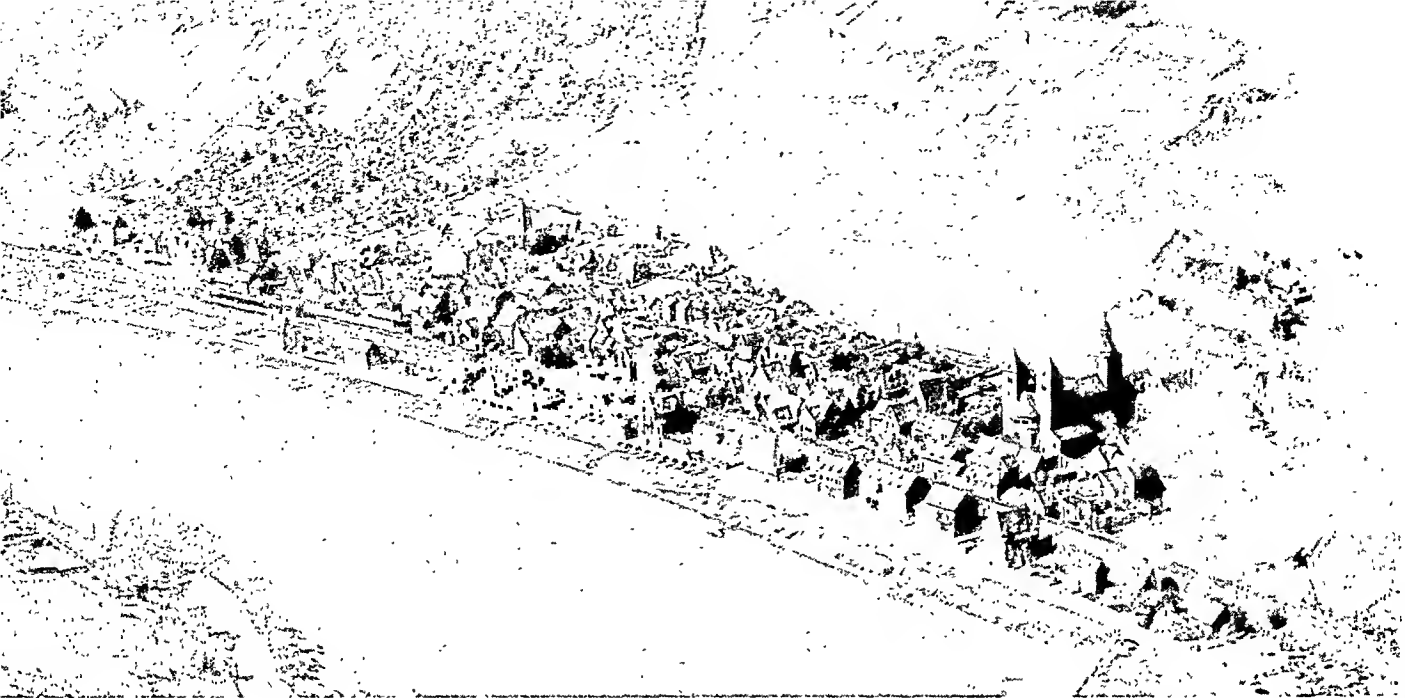
In the east also, the North European Lowland extends farther southward than did the ice sheets. Southern Poland, the plains of eastern Romania, and the whole of southern Russia lie outside the glaciated area. They lack the heavy boulder clay and the infertile gravels and, partly for this reason, are less forested. The contrasts between northern and southern Poland and between northern and southern Russia, which will be emphasized in later chapters, are in part due to the presence

of boulder clay over the surface in the north but not in the south.

During the intervals among the several advances of the ice, cold, dry conditions seem to have prevailed. Winds, blowing outwards from the heart of the Eurasian land mass, carried vast clouds of dust, which they spread over large areas of the North European Lowland and of the plateaus and plains of central Europe and the Danube valley. Much of this deposit has since been obliterated by subsequent advances of the ice, or washed away by the vast postglacial rivers. What remains is the loess, which gives rise to a light, dry soil, easy to clear and cultivate and always giving a generous reward for man's labor.

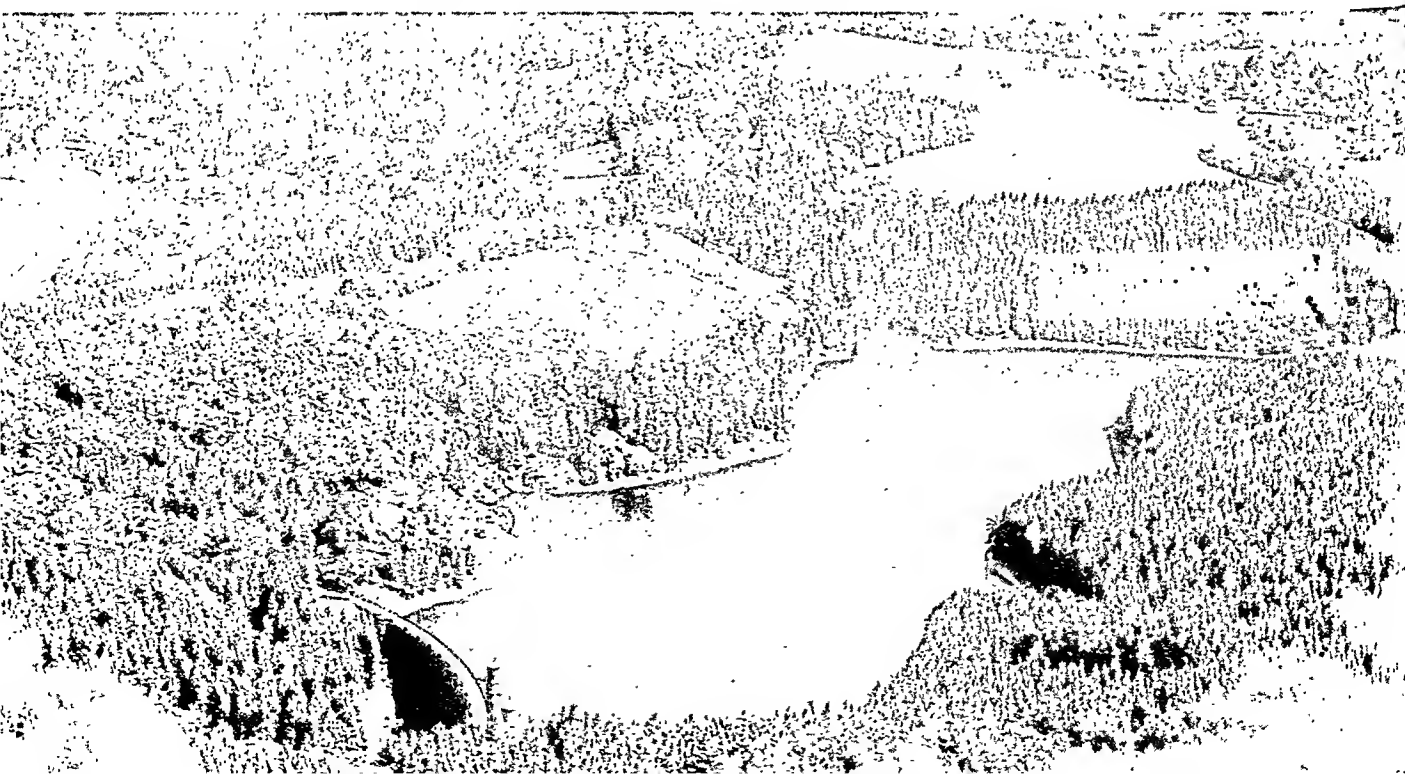
THE MOUNTAINS AND HILLS OF CENTRAL EUROPE

Like the mountains of Scandinavia, the mountains and hills of central Europe are built of hard, ancient rocks, in which minerals, including iron, lead, zinc, and copper, occur. There are no sharp peaks or ice-fretted precipices. These mountains were not glaciated during the Ice Age. Instead, they consist largely of high plateaus, in which the rivers have carved deep and steep-sided valleys. These plateaus show what is sometimes called a "conformity of summit level." They rise to about the same height, and their surface is generally flat or rolling between their deeply entrenched valleys. Here and there a mass of harder rock remains as a small hill rising above the plateau. The scene looks as if the sea floor at some distant time had been uplifted and then carved by the work of rivers. And this is what must actually have happened.



The Hercynian plateaus of central Europe are deeply dissected by steep-sided valleys, with an almost level skyline, evidence of earlier planation. The photograph shows the village of Carden, on the Mosel River in West Germany. (Aerofilms.)

Often the deep, narrow valleys of the Hercynian uplands can be dammed for water storage. This scene, in the West German Siegerland, shows mixed forest interspersed with small, mainly pastoral farms. (Aerofilms.)



The soil is often shallow on the steep slopes, and the climate is sometimes severe on the higher surfaces. These are not fertile or productive areas, and they are now among the least well-populated in Europe. These mountains are broken up by river valleys and plains into a number of separate masses, such as the Central Massif of France, the Vosges Mountains, the Ardennes, the Black Forest, the Harz, and the mountains of Bohemia.

These hills do not constitute a serious barrier to movement. The deep valleys that penetrate them and the plains that separate one hill mass from another provide routeways of no great difficulty into and across the region. The most conspicuous and the most important of these routeways is the valley of the river Rhine, but others are formed by the valleys of the Moselle, Weser, Elbe, and the upper Oder. Some of these hill masses lie within the Alpine system (Fig. 1-1) where their more rounded relief stands in sharp contrast with the sharper and more recent land forms of the Alps themselves.

MOUNTAINS OF THE ALPINE SYSTEM

South of the hilly region of central Europe is the Alpine chain of high mountains. These extend from Spain through France, Switzerland, and the Balkan countries to Turkey and thence eastward across Asia. The Atlas Mountains of North Africa and the mountain ranges of Syria and Israel also belong to this complex system. The mountains are mostly young in geological age. The forces of erosion have not yet worked for a long enough period to rob them of their massive grandeur.

During the Ice Age most parts of the Alpine system were heavily glaciated, and even today the higher mountain ranges are clothed with perpetual snow and glaciers extend down their valleys.

The mountains are not, however, continuous. Between those of Spain and of Italy and France are areas of lowland and sea. The Balearic Islands are all that is left of a former extension of the Betic Mountains of southern Spain. The Alps of France, Switzerland, and northern Italy are, however, high and continuous. There are no easy crossings, and the few passes that are in use are difficult and are closed by snow for a large part of the year. Several railway tunnels, all of them long, have been cut through the Alps to link the northern countries of Europe with Italy, and recently the two road tunnels running under the Great and Little St. Bernard Passes have been opened. The Mont Cenis Tunnel between France and Italy, and the Simplon and St. Gotthard Tunnels between Switzerland and Italy are each over 9 miles long.

Toward the east the Alps become lower and the passes easier to negotiate. In Austria the Alpine system divides. A branch extends to the southeast into Yugoslavia, where it forms the Dinaric Mountains, which continue into Greece. The other branch reaches eastward and becomes lower and narrower as it approaches the Danube. But east of that river it rises into the great curving range of the Carpathians. These stretch in a semi-circle through eastern Czechoslovakia into Rumania. Here they curve back toward the west, forming the Transylvanian Alps. The river Danube breaks across the eastern extremity of the Transyl-

The highly dissected landscape of the Alps. This photograph shows the Finsteraarhorn (14,026 feet) in the middle distance, with the Great Aletsch Glacier in the foreground. In the left distance is Mont Blanc (15,781 feet). (Swissair.)



vanian Alps in the gorges known as the "Iron Gate." South of the river the mountains again curve to the east and, under the name of the "Balkan Mountains," stretch out to the coast of the Black Sea. To the south of the Balkan Mountains is the Rhodope Massif, an inlier of much older rock.

The few gaps through these mountains in the Danube Valley and Balkan peninsula are of great importance. Where the Dinaric Alps branch away from the Alps of Austria, they become low and are easily crossed. The port of Trieste has grown up on the shore of the Adriatic to serve the traffic using this route. The Danube Valley itself provides a routeway across the Austrian Alps and the Carpathians and also across the Transylvanian Alps and the Balkan Mountains. A narrow corridor along which flow the rivers Vardar and Morava separates the Dinaric system and the mountains of Greece from the Rhodope and the Balkan Mountains. The port of Thessalonike lies at the southern end of this route. Another gap, in which lies the city of Sofia, separates the Balkan Mountains from the Rhodope.

The line of the mountainous backbone of the Greek peninsula is continued through the islands of Crete and Rhodes into the Taurus Mountains, which form the southern margin of Asia Minor. The Pontic Mountains, which make up the northern edge, continue the direction of the Balkan Mountains. The Pontic and Taurus Mountains unite in the mountainous mass of Armenia, from which the ranges of Central Asia spread eastward.

The Apennines of Italy continue from the Alps of France and are themselves continued through Sicily and, beyond the sea, through the Atlas Mountains of North Africa. In the Crimean peninsula of southern Russia are mountains which appear to have once continued westward as the Balkan Mountains and eastward as the Caucasus.

The Alpine system of mountains encloses within its sweep a number of plateaus and low plains. Some are, as we have seen, fragments of the older Hercynian Europe that have been caught up within the Alpine folds. Others—the Hungarian Plain, for example—are basins, produced by

faulting or erosion, and partially filled by more recent river and lake deposits. The whole of central Spain, known as the Meseta, lies between the Cantabrian and Betic Mountains.* The Tell Plateau of North Africa lies between the ranges of the Atlas Mountains, and the Anatolian Plateau of Turkey lies between the Pontic and Taurus ranges. A smaller plateau lies in Switzerland between the Alps and the Jura.

The plain of Hungary is a large, low, and almost flat land, also enclosed by the mountains of the Alpine system. Similar in their relationship to the mountains are the Lombardy Plain of northern Italy, the plain of the lower Danube Valley, and other smaller coastal plains around the shores of the Balkan, Italian, and Spanish peninsulas.

The Alpine system of mountains, with its enclosed plateaus and plains and its passes and gaps, is shown somewhat diagrammatically in Fig. 1-1. The reader will notice that in certain places the Alpine mountains approach close to the mountain masses of central Europe. The "gaps" and "gates," sometimes structural, sometimes produced by erosion along lines of weakness, which have developed between the two systems are no less important than those which provide routeways through the Alps. Of the greatest significance are the Gate of Toulouse between the Pyrenees and the Central Massif, the Rhône Valley between the Central Massif and the Alps, the Gate of Belfort between the Vosges and the Jura, the Rhine Valley at Basel, the Danube Valley above Vienna, and the Moravian Gate, which separates Bohemia from the Carpathian Mountains.

These are the major divisions of Europe: the northern or Scandinavian mountains, the great plain of northern Europe, the west-to-east belt of hills and mountains which we have called "the mountains of central Europe," and the Alpine system.

THE RIVERS OF EUROPE

There is no part of western and central Europe which is not drained to the ocean. Only in European Russia do some rivers, particularly the Volga,

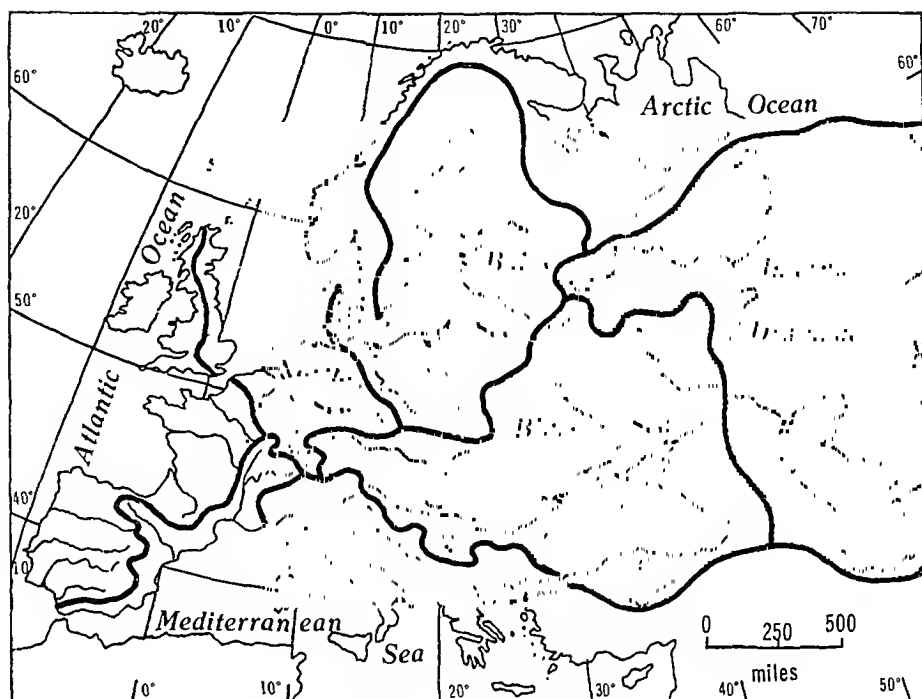


FIGURE 1-2. Drainage basins of the continent of Europe.

drain toward an inland sea, the Caspian. The continent has not developed a large central drainage system like the Amazon or the Mississippi. Instead there are many small river systems, each of which makes its way to the Atlantic Ocean or to one of its many deep, branching inlets.

The Spanish peninsula is very largely drained westward by the Guadalquivir, Guadiana, Tagus,¹ and Douro.² The Ebro is the only river of large size which flows toward the Mediterranean, and its basin has acquired, partly on account of this, a political and economic orientation different from that of the rest of the peninsula.

France is drained by rivers which flow in almost every direction. The Rhône and its tributaries drain southeastern France into the Mediterranean; the Garonne system drains the southwest into the Atlantic; the Seine and other rivers of the Paris

Basin flow northward to the English Channel, while the Moselle (*G*: Mosel), Meuse, and Scheldt drain eastern France and Belgium eastward or northeastward into the Rhine (*G*: Rhein, *F*: Rhin) mouth.

The Rhine is the principal river of western Germany and Switzerland, and economically the most important of the continent. It rises in the Lepontine and Rhaetian Alps of Switzerland and flows through a variety of landscape and topography to its mouth in Holland. To the east, the North German Plain is drained by the Ems, Weser, Elbe, Oder (*P*: Odra), and Vistula (*P*: Wisła), shorter rivers rising in the central upland areas of Europe and flowing by courses which trend from southeast to northwest into either the North Sea or the Baltic Sea.

In length and volume of discharge, as well as in the size of its drainage basin, the Danube is the most important of the rivers of Europe. With its tributaries, it drains not only part of south Germany but also Austria, the Hungarian Plain, and the mountains of Yugoslavia, Romania, and northern Bulgaria.

¹The Spanish form of the name is "Tajo"; the Portuguese, "Tejo."

²This is the Portuguese form, which seems to be most often used by writers in English. The Spanish form is "Duro."

Northern Italy is drained chiefly by the Po, whose most important tributaries rise in the Italian Alps. There are no large or navigable rivers in peninsular Italy—even the Tiber is only a small river—and most are torrents in winter and dried-out water courses in summer. The rivers of Scandinavia are also mainly short, tumbling down from their mountain sources directly to the Baltic Sea or the Atlantic.

The Balkan peninsula, south of the drainage basin of the Danube, has few rivers of size or importance. The largest are the Vardar and Maritsa, which flow southward from Yugoslavia and Bulgaria, respectively, to the Aegean Sea. The rivers of Greece are short, and nowhere do they link up to form a river system. Very few rivers flow down from the Dinaric Mountains to the Adriatic Sea, and most of these are only winter torrents. Only the Neretva of Yugoslavia and the Drin of Albania have opened routes across the mountains.

The regime of rivers depends upon the seasonal distribution of rainfall and on the variety of environment through which they flow. Broadly speaking, they are of four kinds, according to the seasonal distribution of their flow.¹

The Mediterranean rivers are fed by the winter rain of the Mediterranean region. This may be heavy, and the rivers may quickly grow into torrents. Bridges are high-arched to allow the water to pass under them at such times. In summer, however, the climate is dry and the rivers are reduced to slender proportions, or may even dry up entirely and become burning expanses of sand, boulders, and shingle. Such rivers, varying with the seasons from mountain torrent to almost complete desiccation, are of almost no value for navigation. Nor are they of much help to agriculture. They are often deeply incised in their valleys, and water is abundant only in winter and spring, when the land is in least need of it. The depth and narrowness of their valleys, however, allow these rivers to be dammed, and some of the water can be stored either for irrigation or for generating electric power.

¹This division follows M. Pardé, *"Fleuves et rivières,"* Collection Armand Colin, Paris, 1933.

Alpine rivers are fed primarily by the melting snows and ice fields of the high mountains. As melting is most vigorous in late spring and summer, these rivers show the greatest discharge at these seasons. Like Mediterranean rivers, they are often torrential and of no value for navigation, but they commonly drop steeply to the sea and occupy deep valleys in which the water can be impounded for the purposes of power generation.

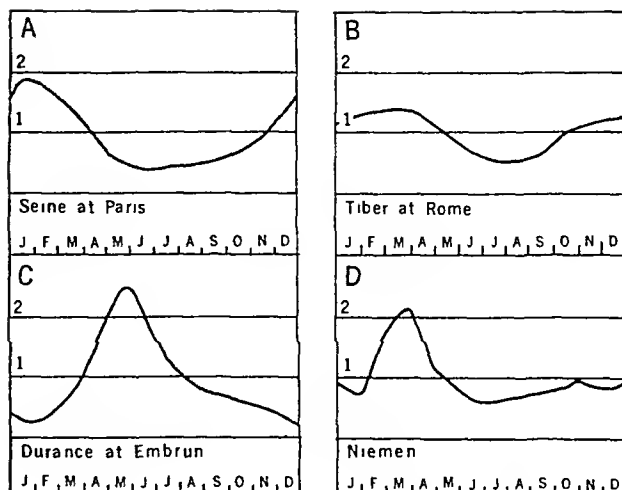
In northwestern Europe, rivers depend upon a rainfall which is better distributed throughout the year than that of the Mediterranean lands. Rainfall conditions vary from a winter maximum to a summer maximum, but evaporation is great enough in summer to ensure that the surface runoff and the discharge of the rivers are heaviest in winter. Thus in the rivers of northwestern Europe, there is a tendency toward a winter high level, but discharge is more even through the year than in other regions. On the larger rivers navigation is usually possible throughout the year.

The rivers of eastern Europe drain an area where the winter freeze is pronounced and where the greater part of the precipitation comes as summer rains. A high water level in late spring due to the melting of snow on the steppes and in the forests is continued into a summer maximum, owing to the rains. The autumn and winter discharge is small.

Figure 1-3 illustrates the regimes of these four simple types of rivers. Large rivers, however, are more complex, as they drain more than one environment and have the characteristics of more than one regime. The Rhine in its upper course is an Alpine river with a maximum discharge in spring and summer. In its middle and lower course it is joined by tributaries from France and Germany, where the rainfall is well distributed and the discharge is greater in winter than in summer. These obliterate the summer maximum and produce a marked winter maximum.

The Rhône and Danube are even more complex. The former drains, in turn, areas having alpine, northwest European, and Mediterranean characteristics. The Danube also has its source in an alpine region but flows through eastern Europe

FIGURE 1-3. The regimes of the rivers Seine, Durance, Tiber, and Niemen. The Seine illustrates the all-the-year discharge and winter maximum of the rivers of western Europe; the Durance, the summer maximum of the Alpine rivers; the Tiber, the winter flow of the Mediterranean rivers, and the Niemen, the spring and summer flow of the rivers of continental eastern Europe. The line marked "1" on the diagrams represents the average monthly discharge, and "2" a rate of flow which is double the average.



and receives tributaries from both northwestern and Mediterranean Europe.

There is not space to describe the regimes of all the larger rivers of Europe. From a study of the climate, however, it is possible to estimate how the rivers behave. The student might, for example, work out the probable regimes of the Po, the Vistula, and the Ebro in the light of the climatic conditions in which they lie.

OCEANS AND SEAS

Europe, including the British Isles, has some 25,000 miles of coast. No point west of European Russia is more than 400 miles from the nearest sea. Only five European countries, Luxembourg, Switzerland, Austria, Czechoslovakia, and Hungary,¹ have no direct access to the sea, and in the years between the two wars these nations developed arrangements by which they regularly used the ports of their neighbors. Some of these arrangements are still in effect, and others have since been negotiated.

Europe is fringed by a belt of shallow sea of varying width known as the Continental Shelf. In general it does not exceed 100 fathoms in depth, and the slope from the coast outward is very gentle. Beyond the edge of this Continental Shelf the sea floor steepens into the Continental Slope, which descends to the great depths of the

¹ In addition to the small states of Andorra, Liechtenstein, San Marino, and Vatican City.

deep sea floor. The shelf is quite narrow off the coast of Northwest Africa, only 20 miles. It remains narrow along the Spanish coast, widening in the Bay of Biscay and expanding to enclose the British Isles and to join them to the mainland of Europe. The margin of the shelf lies more than 200 miles west of Land's End, about 50 miles west of the Irish coast. It sends a long finger of shallow sea, known as the Wyville Thomson ridge, northwest of Scotland in the direction of Iceland. The whole of the North Sea belongs to the Continental Shelf, which is some 50 miles wide along the coast of Norway and broadens in the Arctic Ocean into a shallow submarine extension of Russia.

The edge of the shelf is the true margin of the continent. A number of winding deep channels cross its surface, as if it had once been above sea level and was drained by rivers. The Dogger Bank, the conspicuous shallowing of the North Sea at about 55°N, is probably an accumulation of glacial material which was rafted southward by ice and dropped as the icebergs began to melt. This area of shallow sea has great value as a fish breeding ground, and its shallowness assists the fisheries.

Baltic Sea. A great thickness of ice covered the Baltic area during the Ice Age, and the land was depressed under the weight. The ice has melted away, and the land has risen but has not yet wholly recovered. The Baltic Sea occupies part

of the depression formed in this way. Its floor is still rising, though very slowly, and the sea is becoming smaller and shallower.¹

Evaporation from the surface of the Baltic is relatively small, and the inflow of fresh water brought by the Baltic rivers is considerable. The result is an outflow between the Danish islands into the North Sea. The Baltic is comparatively fresh, and only near its outlet is it nearly as salt as the ocean. This fact causes the Baltic to freeze more readily than other seas. The Gulfs of Bothnia and Finland are often partially frozen for 5 months in each year. The Gulf of Riga and other partially enclosed stretches of water farther south also freeze, though the thickness of ice is not usually too great for icebreakers to clear.

Mediterranean Sea. Like the Baltic, the Mediterranean is almost completely landlocked, communicating with the ocean only by way of the narrow Strait of Gibraltar. Its present form is in large measure determined by the mountain ranges which constitute about three-quarters of its coastline. Between Syria and Tunis, however, the ancient tableland of Africa reaches the sea. The contrast between the types of shoreline produced by the mountains and by the African tableland is strongly marked. The former is irregular, has deep bays and inlets, and is fringed in many parts with islands. The African coast, by contrast, is low and straight, lacking in bays and natural harbors, and as unpropitious to the early seaman as the opposite coast was inviting.

Over much of its extent, the Mediterranean Sea has a depth much greater than that of the Continental Shelf. Depths of more than 1,000 fathoms occur over at least half the area of the sea. The basin is divided into two major divisions by the constriction between Sicily and Tunis, where the sea floor rises to depths of little over 100 fathoms.

The more easterly basin is fully 5° farther south than the western. It approaches the desert more closely, and rainfall in the eastern Mediterranean

Basin is appreciably lower than that in the western. Two seas branch from the eastern basin, the Adriatic and the Aegean. The latter communicates by the Narrows of the Dardanelles and the Bosphorus with the Black Sea. The salinity of the Mediterranean varies. In its southeastern portion, where evaporation is rapid and few rivers bring fresh water, the salinity is very high. Elsewhere the salinity varies with the discharge of nearby rivers, being high along the southern coast and lower nearer the northern. For the Mediterranean as a whole the evaporation exceeds the inflow from rivers, and hence a surface current moves into the Mediterranean from the Atlantic through the Strait of Gibraltar. Saline water is heavy. It sinks and accumulates in the deep basins of the sea, and there is an outward flow of this dense water, deep below the surface, at the Strait of Gibraltar and at the Dardanelles and Bosphorus. It takes little part in the circulation of the sea and is, in consequence, not aerated. The high salinity and the lack of aeration of its deeper waters partly explain the relatively poor fisheries of the Mediterranean and adjoining seas.

Black Sea. Like the Baltic, the Black Sea has a large inflow of fresh water from the rivers which enter it. Some is lost by evaporation, and the remainder escapes in a vigorous current through the Narrows into the Aegean.

Atlantic Ocean. The shores of western Europe from Gibraltar to the North Cape are washed by the Atlantic Ocean. Twenty-eight per cent of the total coastline of Europe fronts the Atlantic. In that area the surface waters of the Atlantic are relatively warm. They are drawn eastward from the West Indies and the Gulf of Mexico by the prevailing westerly winds. In addition to circulating around the British Isles, they bathe the coasts of France and Spain and extend even to the coast of northern Norway. As far northeast as Murmansk, about 70°N, this warm drift of water keeps the sea ice-free. It has a profound influence on the climate of western Europe and is consequently important in transportation, agriculture, and other forms of economic development. This

¹See R. A. Daly, *The Changing World of the Ice Age*, New Haven, pp. 51-80, 1934, for a detailed consideration of the evolution of the Baltic Sea.

drift of relatively warm water has been throughout history the most valuable gift of the New World to the Old.

Arctic Ocean. The Arctic Ocean extends along the northern shores of Norway, Finland, and Russia. It is relatively shallow, and the warm North Atlantic Drift reaches its more westerly parts. East of Murmansk, the coastal water freezes over in winter, and the duration and intensity of the freeze increase eastward. The White Sea, which extends some 300 miles into the forest belt of northern Russia, is frozen sufficiently to impede navigation for about half the year.

The Atlantic Ocean, unlike the other seas which fringe Europe, is subject to tides of considerable range. Twice in approximately 25 hours the sea level rises and falls as a wave sweeps slowly in from the ocean. At London the tidal range is 21 feet at spring tides. The Bristol Channel has an exceptional range of 41½ feet at spring tides. The coast of Brittany also has a great tidal range, and on the sands of the Gulf of St. Malo it is difficult, if not impossible, to outrun the incoming tide. Tides are generally lower on the French coast. Their range is small just within the Baltic and Mediterranean Seas and diminishes eastward. There is, for example, a very small but perceptible rise and fall of the sea in the lagoons of Venice. A number of attempts have been made to use the rise and fall of the tide to generate electric energy, but none has met with great success.

The existence of the tide has two important consequences. First it helps to keep the estuaries of rivers open and navigable, whereas rivers discharging into tideless seas tend to form deltas which impede navigation. The Rhône, Po, and Danube all have large and complex deltas. Rivers discharging into the Atlantic, while by no means free from sediment (the Thames, for example, has what amounts to a submerged delta) are very much clearer of such deposits.

Second, the tides run long distances up some rivers and keep open many small inland ports. Bordeaux, Rouen, and Bristol are among the many examples of tidal ports lying at considerable distances from the sea.

SUMMARY

Europe is a small continent of irregular shape and varied relief. If we include the Mediterranean Basin, there are five major physical divisions: the mountainous region of the extreme northwest, the plain of north Europe, a central east-west belt of hills and mountains, the Alpine mountain system, and the African tableland (which lies entirely to the south and southeast of the Mediterranean sea). The rivers are numerous and, by American standards, small and short. In western Europe their flow is fairly regular through the year; in eastern and southern Europe it is more seasonal. The Mediterranean rivers discharge most in winter; the east European rivers, in summer. Europe is almost surrounded by the sea, which exercises a strong moderating influence on its climate. Most of its coastline is free of ice in winter. The tide is experienced on all coasts facing the Atlantic Ocean. This helps to keep the river mouths free from silting and enables seagoing ships to sail considerable distances up the rivers.

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Abbreviations used in Bibliographies

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|-----------------|---|---------------|---|
| <i>A.A.A.G.</i> | <i>Annals of the Association of American Geographers</i> , Washington, D.C. | <i>G.R.</i> | <i>Geographical Review</i> , American Geographical Society, New York. |
| <i>E.G.</i> | <i>Economic Geography</i> , Worcester, Mass. | <i>I.B.G.</i> | <i>Institute of British Geographers, Transactions</i> , London. |
| <i>G.</i> | <i>Geography</i> , Sheffield, Eng. | <i>J.G.</i> | <i>Journal of Geography</i> , Chicago. |
| <i>G.J.</i> | <i>Geographical Journal</i> , Royal Geographical Society, London. | <i>S.G.M.</i> | <i>Scottish Geographical Magazine</i> , Edinburgh. |

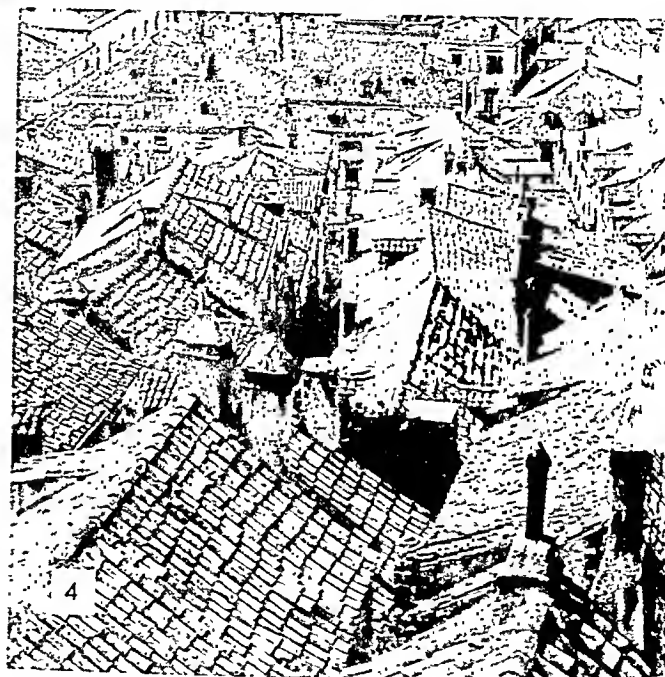
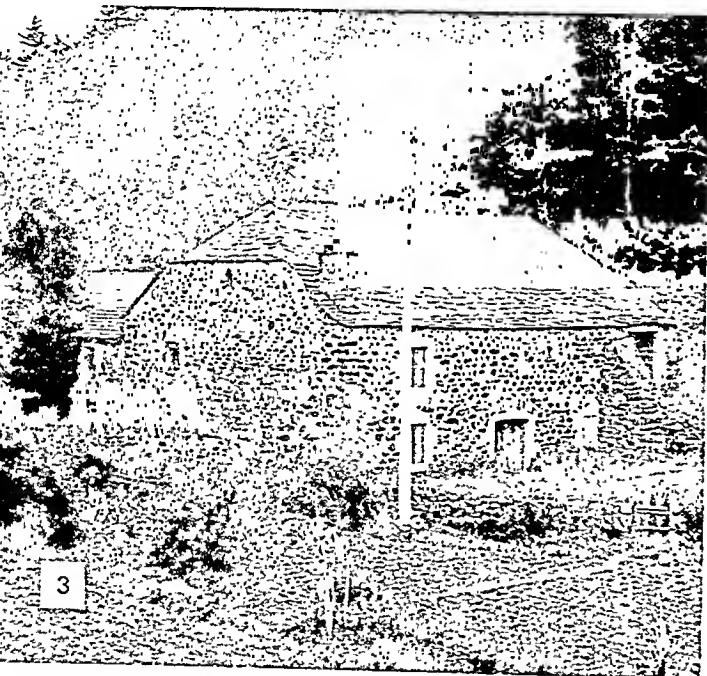
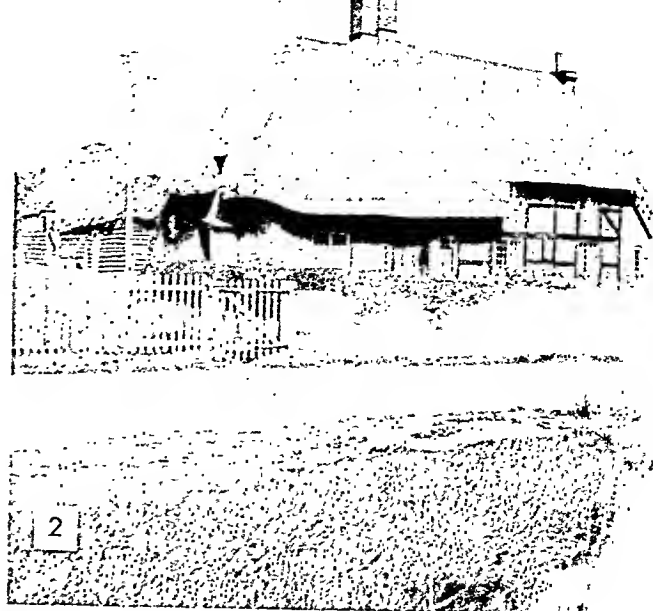
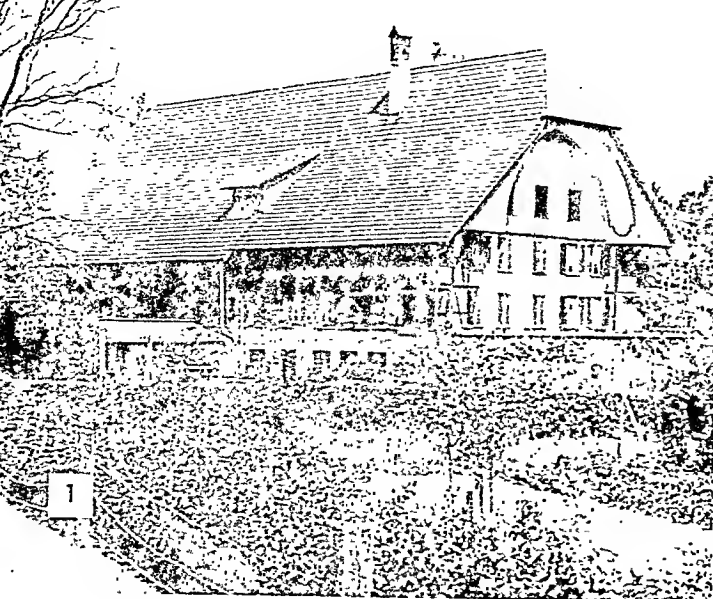
Climate, Soil, and Vegetation

2

Most of Europe has a climate that is particularly well-suited to man. It does not suffer from extremes of heat, except locally in the south and east, or from extremes of cold, except in the east and northeast. This moderation of temperature is due primarily to the influence of the ocean and of the Baltic, Mediterranean, Adriatic, Aegean, and Black Seas, which penetrate deep into the continent. The climate is characterized by rapid changes. It is often said that much of Europe experiences weather, not climate. Fine weather and wet, warm weather and cool, succeed one another in rapid succession. Some winter days are as warm as those of summer, and a summer day can be as chill as winter. In most parts of Europe rain comes at all seasons of the year; and only the Mediterranean region has a distinct dry season.

The fundamental contrast in the climate of Europe between the Mediterranean Basin and the rest of the continent has been well expressed by D. H. Lawrence: "North of the Alps, the everlasting winter is interrupted by summers that struggle and soon yield; south of the Alps, the everlasting summer is interrupted by spasmodic and spiteful winters that never get a real hold, but that are mean and dogged. North of the Alps, you may have a pure winter's day in June. South of the Alps, you may have a midsummer day in December or January or even February."¹

¹ D. H. Lawrence, *Phoenix: The Posthumous Papers of D. H. Lawrence*, New York. p. 49, 1936.



The way in which a building is roofed reflects many influences, of which tradition, the climate, and the materials locally available are the most important. The photographs on this page illustrate (1) a farm near Bern, Switzerland, with steep roof and large, overhanging eaves, designed primarily to shed the heavy snow and protect the walls; (2) a thatched cottage from southern England: a worm roof formerly much used in areas where slate and similar materials were unobtainable; (3) a farmstead in the Au-

ATMOSPHERIC PRESSURE AND WINDS

A large part of Europe lies for most of the year in the track of the west winds. A series of depressions moves in from the Atlantic, bringing the cloud and rain normally associated with low atmospheric pressure. On a map showing the average conditions of atmospheric pressure, Europe lies in a belt of prevailing low barometric pressure. In reality, however, the pressure of the atmosphere varies not only from place to place but also from day to day. It is usually either dropping as a depression approaches or rising as it passes by. A warm, humid air mass, drawn in from a southerly direction to the front of the depression, yields rain. The cold front approaches; a mass of cooler air from a northerly quarter brings lower temperature, a drier atmosphere, a more broken cloud cover, and often sunny weather. Such is the sequence of weather which shows that much of Europe has a climate mild in temperature, wet, and rather stormy, with low average barometric pressure.

The eastward path of the depressions is guided by two areas of relatively high atmospheric pressure, which lie to the north and south of Europe. The Arctic regions have normally a high barometric pressure. Cold, heavy air masses settle

downward and move outward toward more southerly latitudes. At the same time, high pressure extends over the region of the Tropic of Cancer. Here also air tends to sink down toward the earth's surface and to blow outward. Air masses from both the Tropical high-pressure area and the Arctic high-pressure area meet in the belt which lies between, and their interaction gives rise to depressions or cyclonic disturbances which move slowly eastward. In summer, the Tropical high-pressure region becomes larger; it reaches northward from Africa over the Mediterranean, may cover much of central Europe, and on rare occasions even reaches northwestern Europe. This extension of high atmospheric pressure forces the eastward-moving depressions to take a more northerly route. In summer the Arctic high-pressure area is restricted, allowing the depressions to pass eastward across northern Europe. In winter the opposite conditions tend to occur. Then the Arctic high pressure becomes more extensive while the Tropical high withdraws to the south. Cyclones then take a more southerly course. The extent of both the Arctic and the Tropical high-pressure areas varies from day to day. In winter the former may extend far to the south or west for a few days, bringing with it exceptionally cold conditions. It may then retreat as a cyclonic disturbance moves across Europe from the Atlantic, only to expand again a short time later. In winter, cyclone or depression tracks tend to lie across the Mediterranean and southern Europe, while in summer their courses are more often across the Baltic and northern Europe. Despite many irregularities and exceptions, the northward and southward movement of the cyclone tracks is apparent and is responsible for some of the major seasonal climatic changes.

There are frequent variations from what have come to be regarded as the normal climatic conditions. When, for reasons which we do not yet know, the Arctic high-pressure area assumes larger proportions than usual and extends farther to the south, the cold Arctic air spans a wider area. The winter is more severe, and the duration of cold weather is less broken by spells of warmer weather that result from the inflow of tropical air into a

vergne, central France. Here rain is heavy and winds often strong, but the local slate forms a tight-fitting roof. The absence of eaves and gable is not uncommon in such areas; (4) the roofs of the Yugoslav city of Dubrovnik. These are made of the loose-fitting Mediterranean pantiles. Winds are rarely strong enough to disturb them, and the air circulation through the attic helps to cool the house in summer; (5) the wooden roofing shingles used in an alpine village of northwestern Yugoslavia. (N. J. G. Pounds.)

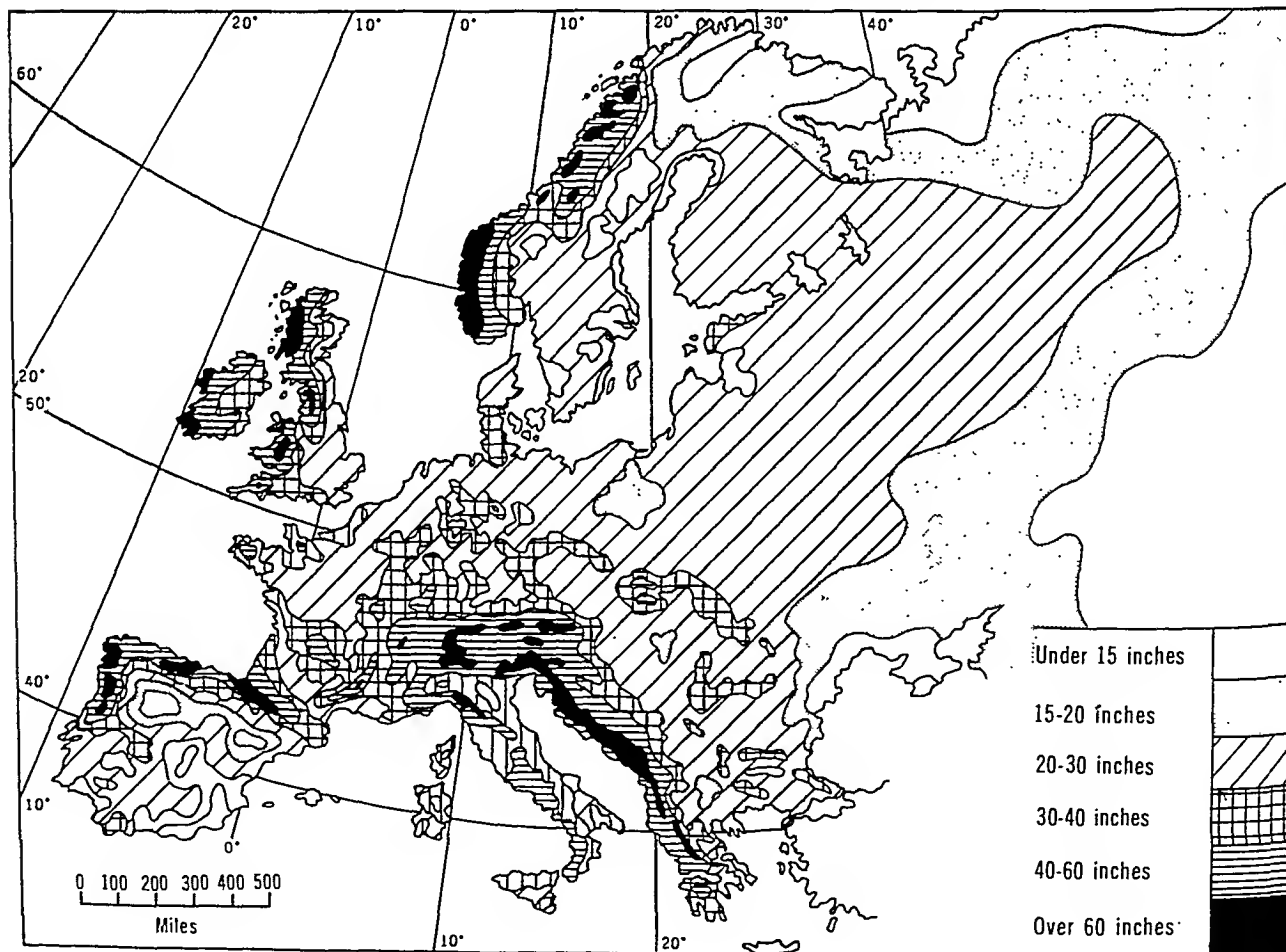
depression. The depressions are themselves fended off by the static mass of Arctic air and are forced to make a detour to the south around its edge. An example of this occurred in the early months of 1947 and again in 1963, when such a mass of Arctic air extended to the British Isles and for a period of many weeks prevented any cyclonic disturbance from bringing relief in the form of a stream of warm Tropical air. The result was a winter of great severity. Most of the severe winters are due to such reasons as these rather than to any progressive change in climate.

During summer months, the reverse can happen. Much of Europe can fall for a period of several weeks under the influence of the Tropical high pressure. At such times, the cyclones are forced to take courses even more northerly than

those usually followed. Then the cool Arctic air fails to break in and the summer becomes one of exceptionally intense heat and drought.

The variation with the seasons of the tracks most often followed by the cyclones suggests a threefold division of Europe. In the south is an east-to-west belt, covering approximately the Mediterranean Basin, where the depressions appear in winter but in summer are few and are sometimes absent for considerable periods. As the rainfall depends largely on cyclonic disturbances, the Mediterranean has a dry summer. Farther to the north is a belt along which the depressions move at all seasons of the year. There is a tendency therefore for the rainfall to be well distributed, with no conspicuously dry seasons. Still farther north is a belt in which the high pressure

FIGURE 2-1. Distribution of rainfall.





Contrasts in humidity. In many parts of Europe—and not only the mountains—the drying of hay in summer presents difficulties. In (1) it is seen spread over drying racks in Slovenia, Yugoslavia (*N. J. G. Pounds*). In (2) field crops are being irrigated in Rheinland-Pfalz, West Germany (*Presse- und Informationsamt, West Germany*).

prevails in winter, when there is, in consequence, little rainfall. The climate of Europe, however, is influenced by factors other than the tracks followed by the “lows” as they move in from the Atlantic Ocean. The local relief features are important, and the intensity of winter cold and summer heat is directly related to distance from the sea.

Cyclonic rainfall is produced by the rising of warm, moist Tropical air over the colder Arctic air. The former is cooled in its rise. Clouds form, and rain falls. A large proportion of the rainfall of Europe occurs in this way, irrespective of the surface features of the land. At the same time, the moisture-laden winds, as they pass from the sea to the land, are forced to rise in order to surmount the physical obstacles that lie in their path. This brings about a cooling of the atmosphere and the formation of clouds and rain. This orographic rainfall is superimposed upon that of a cyclonic origin. It is most conspicuous in hilly districts and is heavier on the windward than on the leeward side of the hills. A third form of rainfall occurs in what is called a “thermal” low. In areas which are intensely heated in summer, the air becomes unstable. A local overturning of the atmosphere takes place, and violent storms occur, often accompanied by thunder. Such rain-

fall happens most often in the hottest season of the year and in areas remote from the sea. In central and eastern Europe a considerable rainfall derives from such summer storms.

The amount and distribution of rainfall do, however, allow us to divide Europe into climatic regions. The Mediterranean Basin is an area of predominantly winter rainfall brought by cyclones moving in from the Atlantic. The rainfall is heaviest on the west-facing slopes of the mountains. Portugal has a markedly higher rainfall than Valencia, Rome than Ancona, Epirus than Thessaly. The southern and eastern shores of the Mediterranean receive little rainfall.

Within the Mediterranean Basin, however, are areas which are distinguished by their summer rainfall, produced by local convectional overturning of the atmosphere. Such areas are relatively remote from the sea and are subjected to intense summer heat. The largest are the central plateau, or Meseta, of Spain and the plateau of Anatolia, or Asia Minor.

The belt of territory extending from the British Isles and France eastward to Russia is characterized by rain at all seasons of the year. The maximum amount varies, however, from the autumn and winter months in the west to the summer months in the center and east. Hilly areas

have the effect everywhere within this belt of increasing the total rainfall. High totals have been recorded on the westward-facing mountain slopes of Scotland, northern England, and Wales. The average at Seathwaite in the Lake District is 129.5 inches; on Ben Nevis in Scotland, 171 inches. Bergen, on the west coast of Norway, has 81 inches. The amount of rainfall diminishes eastward across the continent, but an area of hill country is always likely to receive an amount in excess of that received on lower land around it.

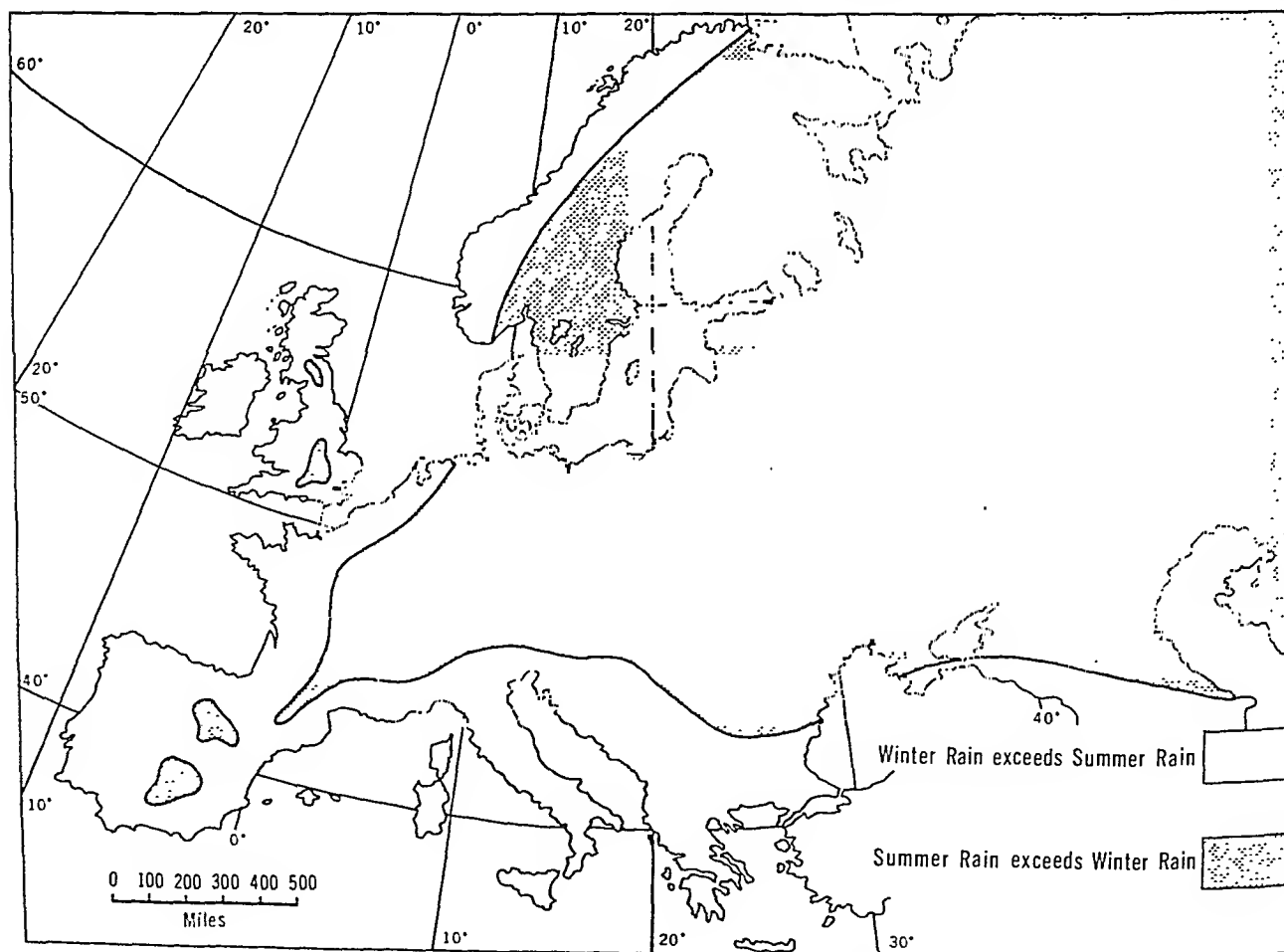
As distance from the sea increases and the intensity of summer heat becomes more pronounced, the convectional element in the total rainfall increases. Even in the English Midlands the total of summer rainfall just exceeds that of winter. Similarly in central France, July and August are

the wettest months. Figure 2-2 illustrates the transition from the west coast winter maximum rainfall of the Breton coast to the continental summer maximum of southern Russia.

The total volume of rainfall diminishes northward. The summer maximum becomes less conspicuous, though it is present, in Sweden, Finland, and northern Russia. The lowering of the total precipitation is due to the reduced temperature of the air and to the fact that the cooling of the air through a given number of degrees liberates less moisture at a lower temperature.

An important factor in the temperature of Europe is the sea, which almost surrounds the continent and also sends branches deep into the land mass. The sea gains heat slowly in summer and loses heat slowly in winter. In sharp contrast

FIGURE 2-2. Seasonal distribution of rainfall in Europe.





In all parts except southern and western Europe rivers are liable to freeze over in winter. This scene of the river Lek, a distributary of the Rhine, in the Netherlands, shows the ice being broken up by two small icebreakers. (Aerofilms.)

to the land, it shows only a small seasonal range of temperature. Air currents passing from the sea to the land in winter have a warming influence, whereas sea winds in summer cool the neighboring land. The lay of the mountains is such as to allow the maritime winds from the west to penetrate deeply into the continent. The effect of the sea is to moderate the extremes of temperature. The influence of the seas of western Europe is increased by the warm surface drift which comes as the North Atlantic Drift. Harbors are free of ice in winter as far north as Murmansk. Sea ice

is rare, except in enclosed seas, and western Europe has a conspicuously mild winter.

Only northern Russia has temperatures which in America would be regarded as very low. The area lying north of about 56° latitude may be termed cold; here the average monthly temperature for at least two-thirds of the year is below 50° Fahrenheit.¹ The picture is one of winters of

¹All temperatures will be quoted according to the Fahrenheit scale.

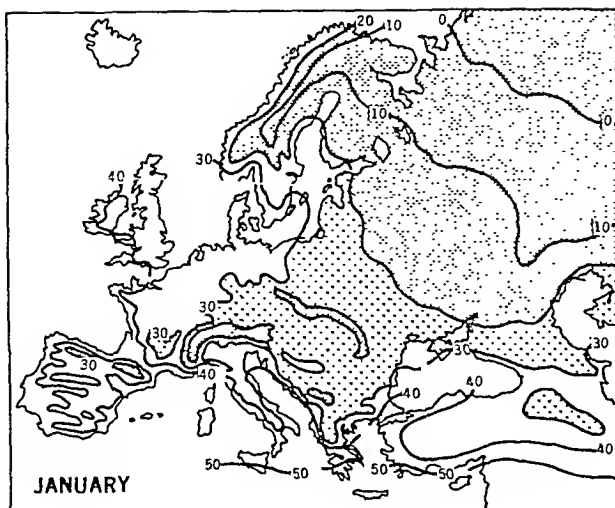


FIGURE 2-3. Average temperature in January (not reduced to sea level).

increasing length and intensity as one moves northward. An examination of the actual isotherms in summer and winter gives a rather fuller picture.

Broadly, the predominant influences upon the winter temperatures of Europe are, on the one hand, the proximity of the ocean and the mild temperatures borne inland by the winds and, on the other, the cold air mass that builds up over eastern Europe and central Asia. Direct insolation is more important in summer, but here too the moderating influence of the sea is felt, and cooler temperatures are experienced near the coast than inland. In January the 40° isotherm (see Fig. 2-3) runs almost from north to south, from the Hebrides through Ireland, west Wales, and south-west England across France from Normandy to

the Mediterranean. The isotherm of 32° similarly takes a north-to-south course, lying close to the Norwegian coast, running through the Danish peninsula, and then taking a southeasterly course to the Balkans. The 20° and 10° isotherms also run from northern Scandinavia southeastward across Russia to the Caspian Sea. Winter temperatures thus do not decrease northward but rather northeastward or eastward, the Biscay coast of France being warmer by some 15° than the Crimean coast in the same latitude. The coast of southern England is more than 30° warmer than the south Russian steppe. This is closely similar to the relationships between Washington or Oregon and Maine and between California and Virginia or Maryland.

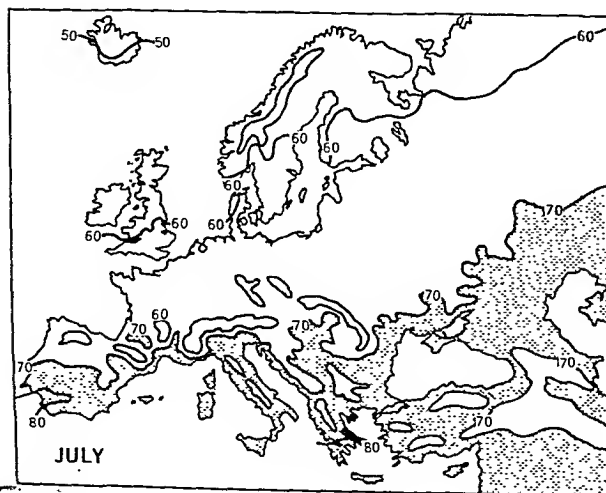


FIGURE 2-4. Average temperature in July (not reduced to sea level).

In summer, temperatures fall off more regularly toward the north (Fig. 2-4). In July, the average temperature of the whole Mediterranean coastland is 70° and over. A generalized 70° isotherm runs from the coast of Portugal somewhat north of eastward and encloses the Hungarian Plain and the steppes of the southeastern part of European Russia. The 60° isotherm is broadly parallel, from south Wales through northern Denmark and central Sweden to Finland and the White Sea. The summer isotherms are inclined, though less conspicuously, in the opposite direction to those of winter. Thus do oceanic influences modify the climate of western Europe.

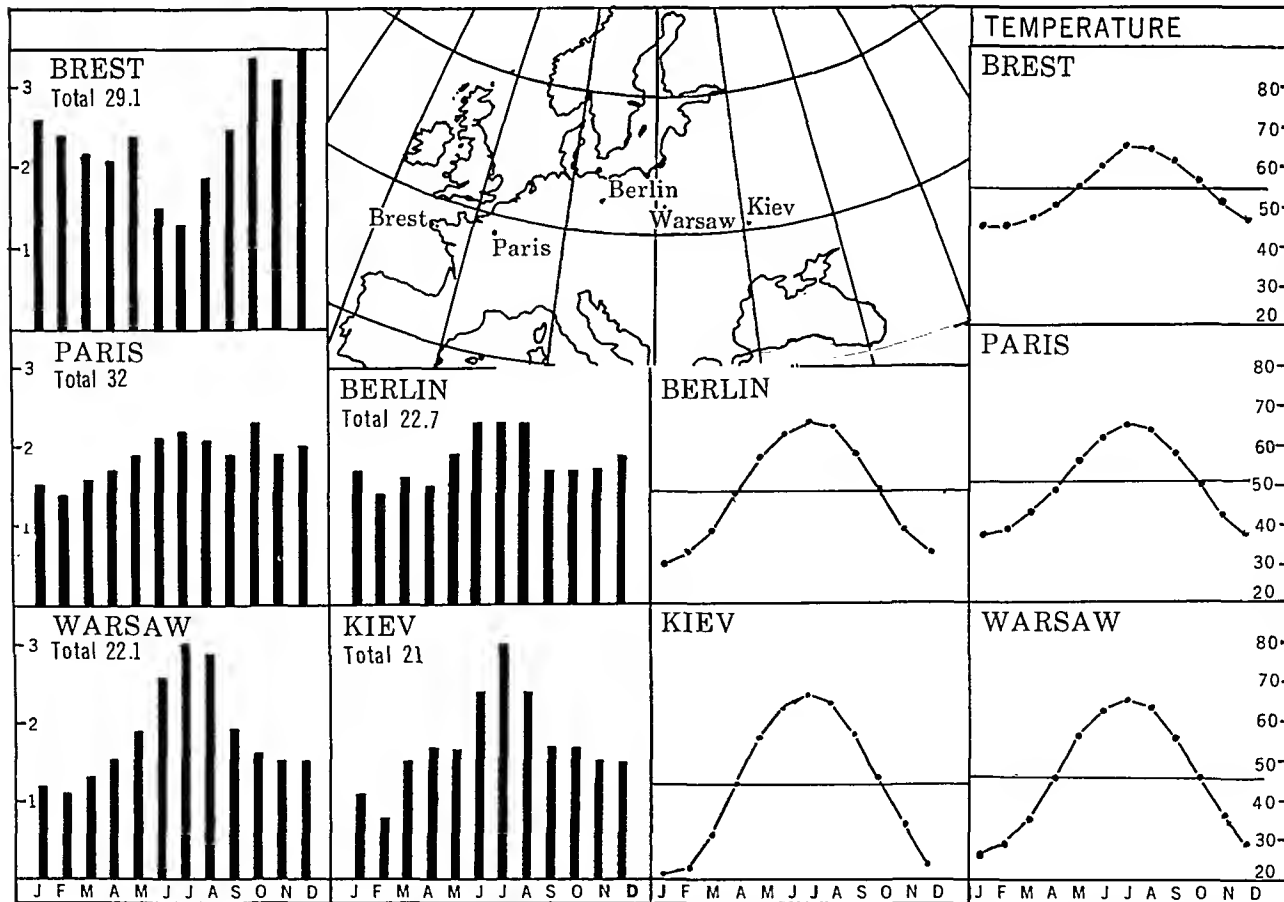
The seasonal range of temperatures increases eastward (Fig. 2-5). In the extreme west the summer is less than 20° warmer than the winter. It increases in central Germany to between 30° and

40°. In eastern European Russia the summers are 60° warmer than the winters. The Baltic, Black, and Mediterranean Seas reduce somewhat the range of temperature experienced in their neighbourhood, and the moderating effect of the Black Sea is particularly marked (Fig. 2-4).

CLIMATIC REGIONS

In the light of this examination of the distribution of rainfall and temperature we can divide Europe into climatic regions, within each of which the climate is sufficiently homogeneous to be described in simple terms. A division into Mediterranean Europe, temperate Europe (stretching from the British Isles and France eastward to Russia), and cool northern Europe at once suggests itself. Each of these, however, can be divided further.

FIGURE 2-5. Maritime and continental climates in Europe.



Mediterranean Climates. The Mediterranean region is characterized by a rainfall generally limited in quantity and occurring mainly in the winter half year. Temperatures are mild or warm in winter and hot in summer. Within the Mediterranean three divisions suggest themselves.

1. The northern coastlands together with the Atlas region are characterized by a rainfall that is generally above 25 inches a year. Winters in these areas are usually mild, though cold spells occur; temperatures may be below freezing for several days in succession, snow lies on higher ground, and snowfalls occur even near the sea. Summers are hot, and a little rain falls in most summer months.

2. The eastern and southeastern shores of the Mediterranean lie in a lower latitude. The influence of depressions moving in from the Atlantic is less marked, and the rainfall is light. Winters are warm, and summers are hot. Of the countries discussed in this book, this variant of the Mediterranean climate is experienced only in southeastern Turkey.

3. Within the limits of Mediterranean climate are a few areas in which the climate departs from the normal Mediterranean pattern. The winter maximum of rainfall is supplemented by a convectional summer rainfall, and the seasonal range of temperature is greater than elsewhere in the Mediterranean Basin. The central plateaus of Spain, Turkey, and northeastern Italy have this characteristic. They also have severe winters owing to their separation from the sea and their relatively high altitude. Summers are very hot.

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Cool Temperate Climates. This region experiences temperatures above 50° for at least 8 months in the year. The summers are occasionally and locally hot, but the extremes of the southeastern Mediterranean are not known. Over most of the area, winters are not severe. This climate belt is distinguished from the Mediterranean chiefly by the distribution of its rainfall, and from the cold climate of Europe by the number of months with a temperature above 50°. The distribution of rainfall and temperature necessitates a subdivision of cool temperate Europe into three categories.

1. In the mild, moist region of the west the rainfall is well distributed. If there is a summer maximum, it is not strongly marked. Winter temperatures are warm for the latitude; no month has an average temperature below freezing point. Summers are seldom hot, though short "heat waves" sometimes occur. The atmosphere is generally humid; fog is common in winter, especially near the industrial cities. There is a high degree of cloudiness, and the number of hours of sunshine in the year is sometimes quite small. On the other hand the climate is comparatively regular, and large departures from the average of rainfall and temperature are rare.

2. In central Europe the changes perceptible in the climate of western Europe become more clearly marked. The seasonal temperature ranges increase from about 25° to about 40°. A summer rainfall maximum appears. The winters become colder, though severe cold is experienced only for relatively short spells. The total precipitation diminishes. Central Europe is drier than western. In general there is more sunshine, but the reliability of rainfall and temperature is less than in the climatic region lying to the west.

3. In eastern Europe the characteristics of central Europe appear in an exaggerated form. The annual range of temperature rises from 40° to 60°. The total amount of precipitation diminishes and is largely concentrated in the summer, when the rain is often torrential and accompanied by thunder.

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Cold Climates. The region of cold climate has an average temperature of less than 50° during at least 8 months in the year. In Europe, however, it may be divided into a wetter western area, with a mild winter, and a drier eastern, with a winter of great severity.

1. Much of Norway and Sweden have cool, cloudy, and wet summers, and winters that are even wetter and more cloudy but not really severe. The winter temperatures on the Norwegian coast rarely drop to freezing point, though short distances inland, at the heads of the fiords and on rising ground, ice forms and snow lies through the winter. Similar conditions, though colder in winter

and drier throughout the year, extend into Sweden.

2. The damp, mild climate of the west merges gradually into one of greater severity. Winter temperatures diminish: Riga has a January average of 24°, Leningrad of 18°, Moscow of 14°, and Kazan of 7.5°. Summers are warm towards the south of this region, with July temperatures of 70° and more, but farther to the north the summers are short and cool.

SUMMARY

Exposure to marine influences and the variations in the eastward movement of low-pressure areas from the Atlantic account for the general moderation of the climate of Europe. These "lows" follow tracks farther to the north in summer than those followed in winter. The result is that southern Europe receives little rainfall during the summer months and many parts have none at all. The rest of the continent receives rainfall at all seasons, but the amount diminishes eastward. In the west the winter is generally the wettest period, but in central and eastern Europe the rainfall maximum shifts to the summer. The temperatures in winter generally diminish with increasing distance from the sea. In summer, the greatest heat is felt in the south and east of Europe. The climatic regions may be summarized as follows:

1. A Mediterranean region of hot and generally dry summers, with cool mild winters.

2. A region of cool temperate climate which stretches from west to east across Europe. The rainfall diminishes and the temperatures become more extreme toward the east.

3. A region of cold climate, with cool summers and cold winters, moderated somewhat in the west by the proximity of the ocean.

VEGETATION AND SOILS

Topography and climate, vegetation and soils are all intimately related one to another. Together they make up most of the physical environment. Though it is often necessary—as has been done in the preceding pages—to separate these phe-

nomena from one another for purposes of description and analysis, it must be remembered that it is the totality which matters. Soils, for example, derive in part from the parent rock, but their depth and composition vary with relief and climate, and their texture varies both with the nature and distribution of the plants that contribute humus, and with the extent to which they have been developed and used by man.

The vegetation of Europe, which man has profoundly modified during the last 4,000 to 5,000 years, is still nevertheless in the process of evolution. As the climate improved with the retreat of the glaciers, plants which had been exterminated in Europe or restricted to small areas gradually recolonized parts of their old habitat. More southerly types migrated northward. The dominant plant species in any locality yielded place to others. The natural vegetation in any place depends partly on the stage reached in this slow propagation of plant species over the continent, partly on the climate, and partly on the rock and soil. The rock and soil vary within short distances. Limestones give place to sands or clays, each with a characteristic flora; boulder clay, outwash, terrace gravels, and loess each influence the type of vegetation. There are changes with slope, altitude, and drainage.

Despite these strongly marked and often abrupt changes in flora, there is a degree of uniformity in the vegetation over large areas which allows Europe to be divided into five distinct vegetation belts or zones.

The Tundra. The tundra occupies the extreme north: the uplands of northern Scandinavia, the plains of northern Finland and Russia, and the islands which lie north of the coast of Europe. Winters are very cold, and summers cool. Precipitation is slight and occurs chiefly as snow in winter and as light rain in summer. The plants are adapted to the extreme cold, to the conditions of drought which exist in winter and even in summer, and to the very short growing season in summer. Trees, except dwarfed varieties growing in particularly sheltered spots, are lacking. Most plants are low and stunted; in some areas, moss

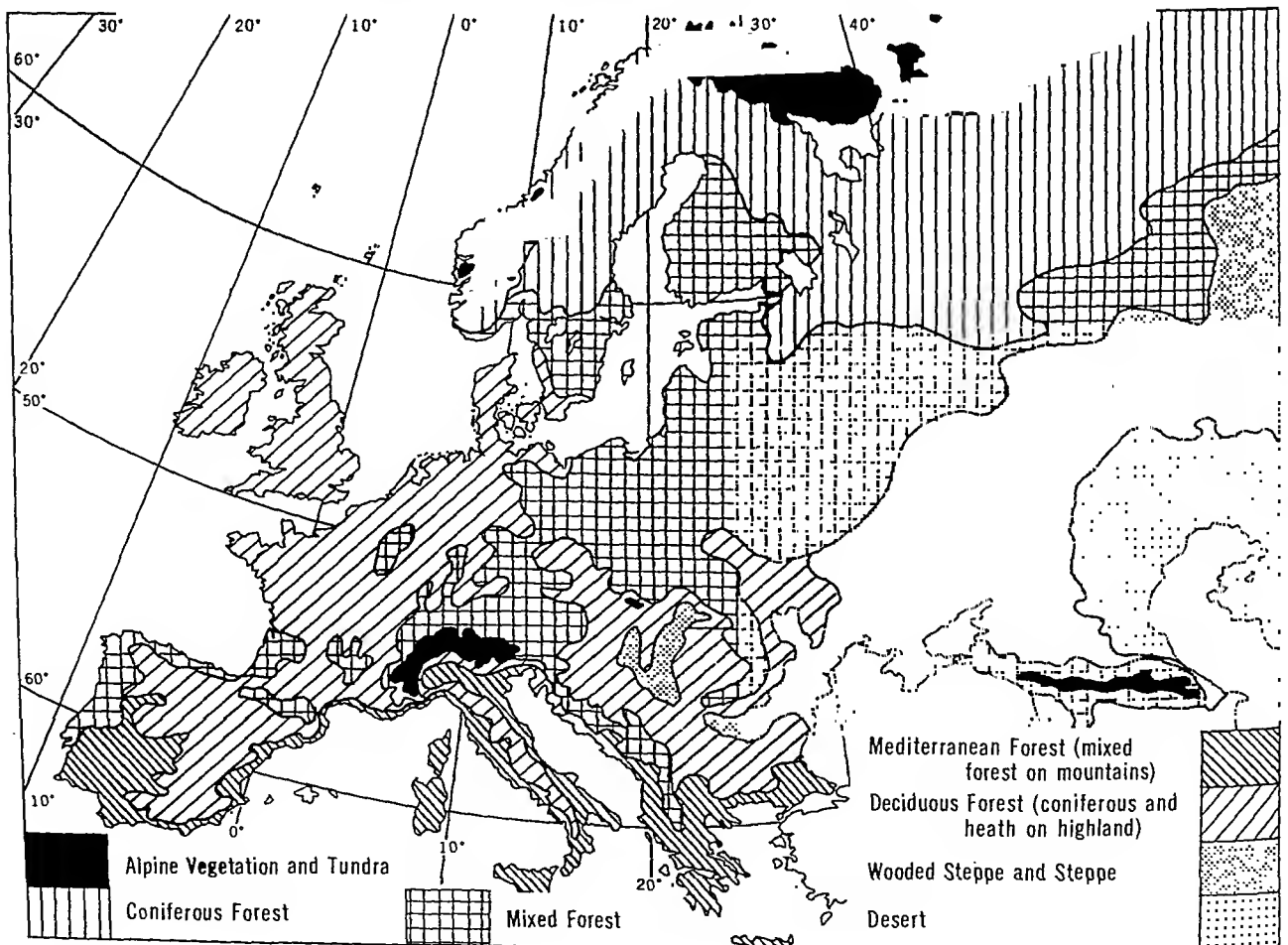
or lichen predominates over a land surface that is almost devoid of soil. On slopes, short woody plants appear, often with thick leaves not unlike those of plants which grow in the Mediterranean region. Some of these bear brilliant flowers in summer. The vegetation conforms closely with the aspect of the land. A southerly slope may have stunted bushes and grass, while a northern one has chiefly lichens and bare rock.

Southward "the Arctic tundra slowly but definitely passes over into the Northern forest: at first nothing but stones, and low bushes, here and there the stump of a birch tree, and dry wood, here and there the golden sparkle of cinquefoil . . . ; then the underwood continues to become thicker, it is taller and shaggier, everywhere, as far as

the eye can see, the white little flames of birch stems, mingling with them slim and glistening aspens, dark bushes of alders, and silvery willows, and everywhere beneath the willows, beneath the crowberries,¹ beneath the birches surges the peat, nothing but black, wet, shining peat. And then above the low undulating growth a dried and twisted stem raises itself and carries a meagre crown; the shaggy brushwood of knotted pines begins to darken; strangely our mountain knee-pine is absent, here only the tall, pathetic pine struggles tenaciously for life. And now already it has won the battle; it is still gnarled, and tattered

¹Fruit of a low-growing, heathlike shrub.

FIGURE 2-6. Predominant vegetation types in Europe.



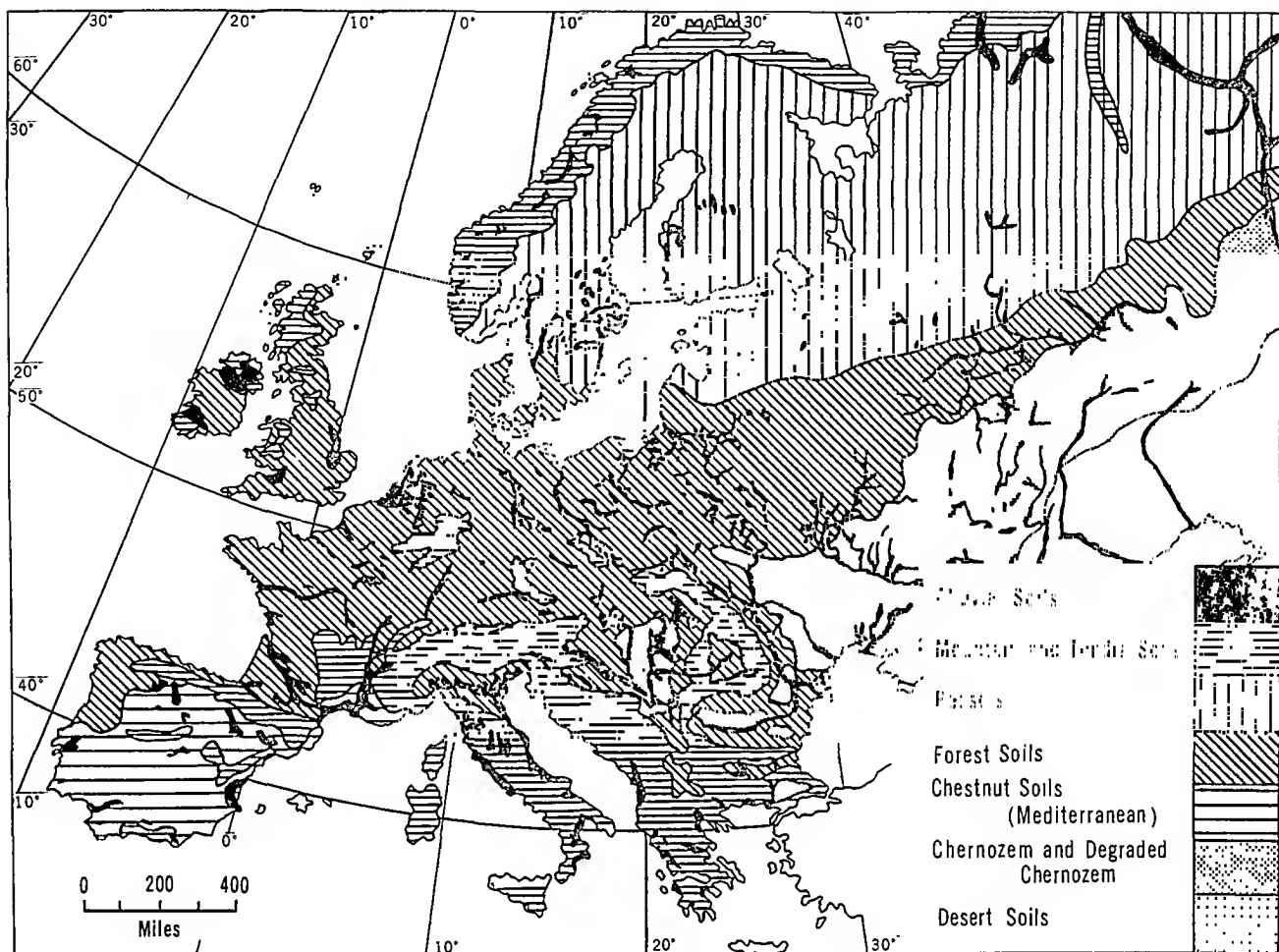


FIGURE 2-7. A generalized soil map of Europe.

by the storms, and broken by the snow, but already its lanky stem and heavy boughs give a deep and solemn character to the whole country. The birches are becoming fewer, the pines are gaining ground. . . ."²

Coniferous Forest. The belt of evergreen forest consists mainly of various species of pine, spruce, and fir but includes also the larch and such hardy deciduous trees as the birch, alder, poplar, and willow. Characteristics of these northern forests are the occurrence of large uniform stands of

timber and the relative absence of grass and herbs. This forest was formerly continuous over large areas of northern Europe, and south of its predominant habitat it occurs on high ground and on areas of light or acid soil on which the broad-leaved tree takes root with greater difficulty.

There is little soil in the tundra region, but southward in the region of coniferous forest a podsol develops. This gray or white soil has low fertility. It is developed in areas of moderate or heavy rainfall and cool temperatures. The coniferous trees yield little green stuff to form humus, and that little is readily carried downward and dissipated by percolating waters.

Below a shallow surface layer which contains humus is a white, leached horizon, from which

²Karel Capek, *Travels in the North*, London, pp. 231-232, 1939.

most of the fertility has been removed. The podsolis are usually infertile and "hungry" soils requiring heavy manuring if they are to produce well. True podsolis characterize much of Norway and Sweden, as well as Finland and northern Russia. They support only a poor agriculture. They are often acid and sour. Rye, oats, and potatoes are the commonest crops on the podsolis of the northern forests.

Broad-leaved Deciduous Forest. Broad-leaved deciduous forest occupies the moist area of more temperate climate in Europe. In certain respects the broad-leaved forest resembles the coniferous: large stands of a few species are quite common, the trees form a canopy of vegetation, and on the ground there is little undergrowth except where the woodland cover is thin. The autumn leaf fall is characteristic of this forest; leaves rot on the ground and produce a forest mold which has a fertility much greater than the poor soils of the coniferous belt. The woodland trees have their particular habitats: beech and ash are characteristic of lime-bearing soils; oak with hazel thicket is characteristic of clay; poplar, willow, and osier grow on damp soils; and the elm is generally found on moist soils. Certain areas of dry and pervious soil, such as the glacial gravels of Germany, bear only a thin cover of woodland or of heath. The chalk "downland" is usually treeless unless it has a thin mantling of residual clay, when it bears patches of woodland. The loess belt, which lies along the southern margin of the formerly glaciated area, probably had a lightly wooded or parkland aspect.

The limits of the broad-leaved forest are not clearly marked. Its boundary runs across northern Spain, southern France, northern Italy, and the Balkans from the Adriatic coast to the Black Sea. In southern Russia the woodland merges into the steppe. Hungary, which lies north of this line, has been, at least in part, an area of steppe in recent centuries. It is probable, however, that its vegetation was formerly open woodland and that we have here an instance of man-made steppe.

In this region of broad-leaved forest, there is

more humus in the soil. Nevertheless, if the rainfall is heavy, as in many parts it is, there is still a great deal of solution and removal of humus. Many parts are "podsolized," the hills of the western parts of the British Isles, of Brittany, and of Germany being examples. Over much of this region, however, the soil is largely man-made. It was settled and cultivated at an early date in human history. Man has plowed and tilled, manured and drained. He has gradually altered—and in general improved—the composition of the soil. At its best, the soil of the broad-leaved forest is one of the most productive existing, but there still remain many sour podsolis areas, scarcely fit for crop husbandry.

The Steppe. The change from the forest to the steppe is gradual. "Round low hills tilled and sown to their very tops, are seen in broad undulations; ravines, overgrown with bushes, wind coiling among them; small copses are scattered like oblong islands; from village to village run narrow paths; churches stand out white; between willow-bushes glimmers a little river, in four places dammed up by dykes; far off, in a field, in a line, an old manorhouse, with its outhouses, fruit-garden, and threshing floor, huddles close up to a small lake. The hills are smaller and ever smaller: there is scarcely a tree to be seen. Here it is at last—the boundless, untrodden steppe."¹

The steppe was originally a rolling expanse of tall grassland. On its moister fringe was open woodland; on its drier, the grass became thinner and poorer as it merged into scrub desert. The natural vegetation cover has long since been destroyed, at least in the more favored parts, to make way for crop farming. The soil on the steppe is known as "chernozem." The growth of tall grass gives rise to a rich humus in the upper layer of the soil, which is characteristically black in color. The chernozem is rich in plant food and is thus among the richest and most productive of soils.

¹ I. Turgenev, "The Forest and the Steppe," in *Sportsman's Sketches*, New York, 1885.

In Europe it occurs in Hungary and in the steppe which stretches from southern Russia into Central Asia.

Where, on the desert margin of the steppe, the vegetation is thinner and the supply of humus less abundant, the chernozem gives place to dark-brown and chestnut soils. These nevertheless have some agricultural value, and if they are not cultivated, it is because the rainfall is inadequate rather than because of deficiencies in the soil itself.

Mediterranean. The period of prolonged drought, coinciding with that of great heat, has produced a woody vegetation which is characteristically evergreen, with thick, leathery leaves, woody stems, and deep roots. Such vegetation is described as "sclerophyllous." The trees include evergreen conifers, such as the southern and Aleppo pines and cypress, and also broad-leaved evergreens like the ilex, or holm, oak, the cork oak, and the Spanish chestnut. Thick woodland is not common. There is, however, an abundance of shrubs and small trees, some of them bearing brilliant flowers, some highly aromatic, and all evergreen. The olive, now rarely found wild, is one; the laurel (bay), oleander, tamarisk, myrtle, and mimosa are others. The ground is often covered with a thick mat of low, spreading thicket, made up of thyme, sage, and lavender. There is a wealth of small bulbous flowering plants—the tulips, narcissi, and asphodels. All combine to produce a blaze of color in the spring and die back to the prevailing gray-green which characterizes Mediterranean lands through the heat of the summer.

The wasteland is usually covered with one of two characteristic types of vegetation. The first is the *garrigue*, a sparse covering of low-growing plants which root in the crevices of the rock. This is characteristic of the limestone. The *maquis*¹ is somewhat richer and consists generally of almost impenetrable thicket in which men can hide with

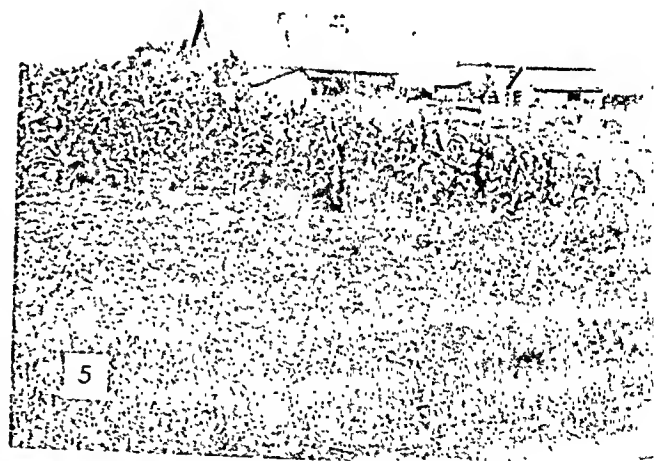
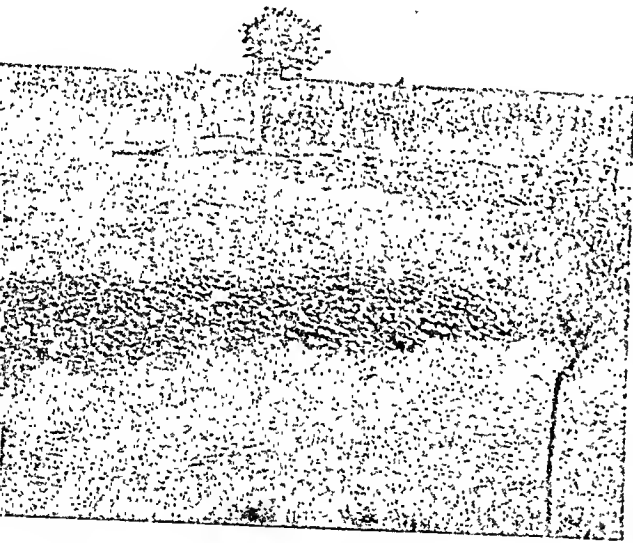
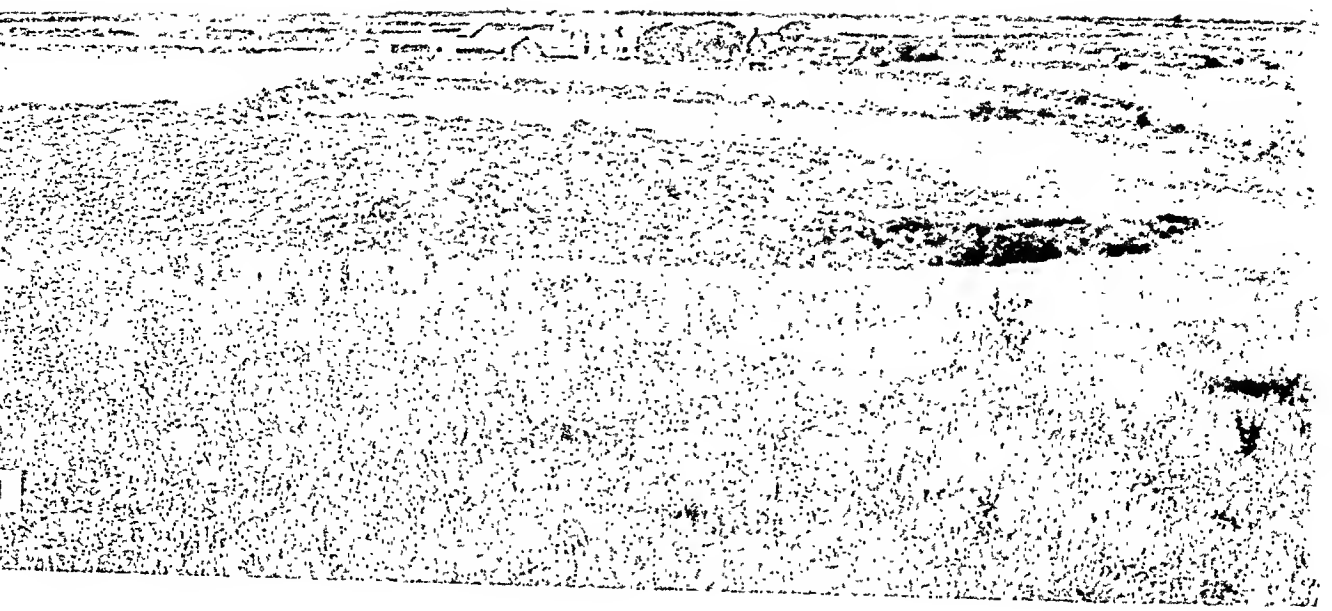
considerable ease. The resistance movement in France during the Second World War was called the "Maquis" because many of its members used to hide in this thick vegetation. The low and seasonal rainfall and the generally sparse vegetation developed a soil that is shallow, poor in humus, and generally of low fertility and more suited for trees than crop farming.

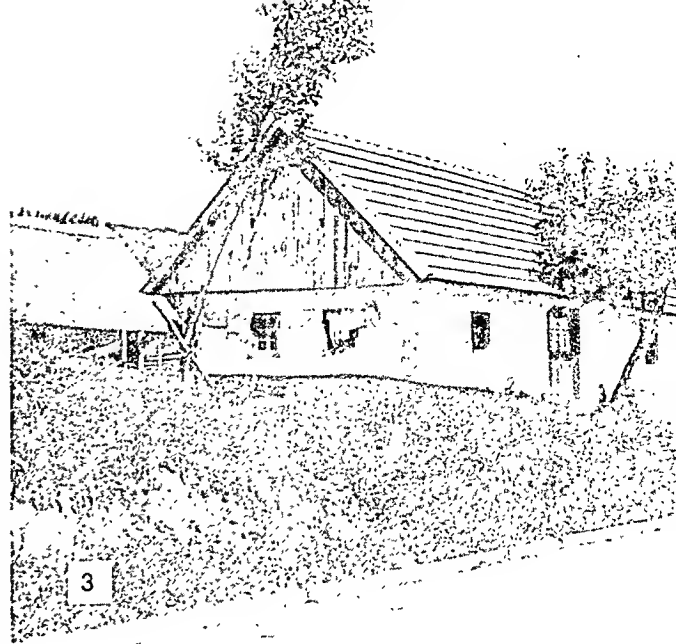
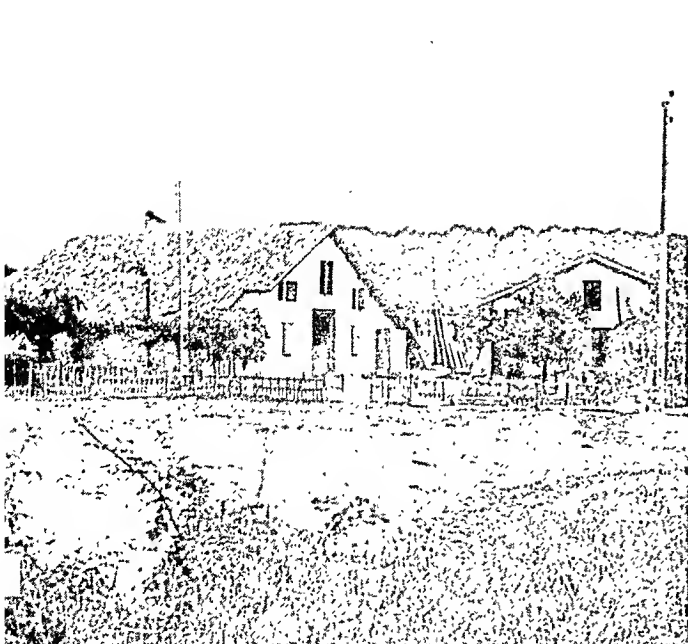
The mountainous areas of Europe form an exception to the distribution of vegetation as it has been described here. The diminution of temperature with increasing altitude on the mountain causes a zoning of the vegetation. The Alps, for example, which lie mainly in the region of broad-leaved deciduous forest, have coniferous forests on their intermediate slopes, succeeded on their higher slopes by stunted trees and low-growing plants, such as characterize the tundra. Mountains, such as those of Norway and Sweden, which are within the coniferous forest belt, rise, if they are high enough, directly into the tundra.

MAN'S ADAPTATION OF NATURE

Everywhere in Europe is evidence of man's work. The landscape is "humanized," and very few areas—chiefly high mountains, tundra, semidesert—have not been fundamentally altered by his occupancy. Irrigation in the arid regions of the south and southeast, the reclamation of fens as in the Fenland of England, the draining of the Polders of the Netherlands and of coastal marshes in France, Italy, and Germany are all evidences of constructive use of the land. Even more conspicuous are the terraces on the hillsides of southern France, of Italy, and of other Mediterranean countries, laboriously made so that man can grow his vines, his olives, and his patches of wheat and vegetables on a hillside that would otherwise be too steep for successful use. Examples are not lacking, however, of destructive land use. Deforestation has been accompanied by soil erosion, the silting of rivers, and the spread of disease in southern Europe. It was customary at one time to ascribe the spread of malaria and even the fall of the ancient civilizations to this cause. There are

¹ This is the French name. It is known as *matorral* in Spain and as *macchia* in Italy.



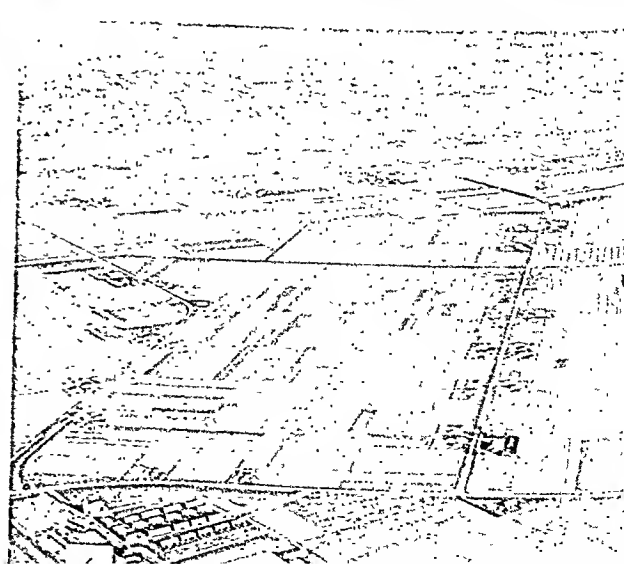
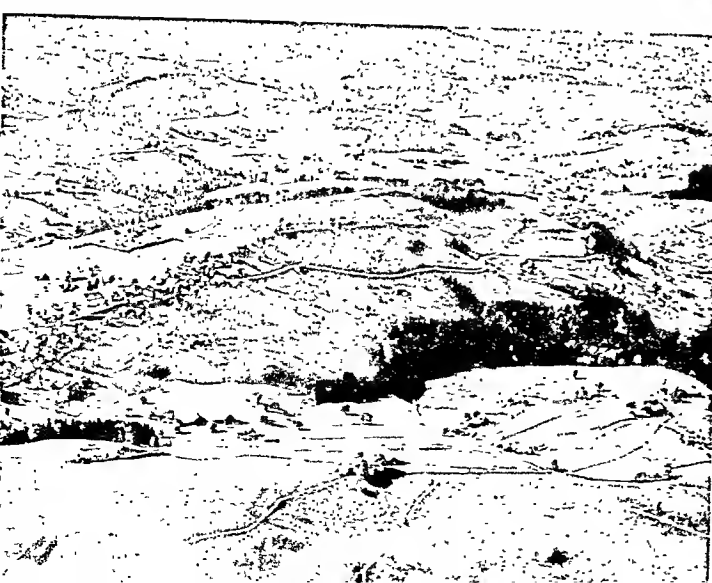
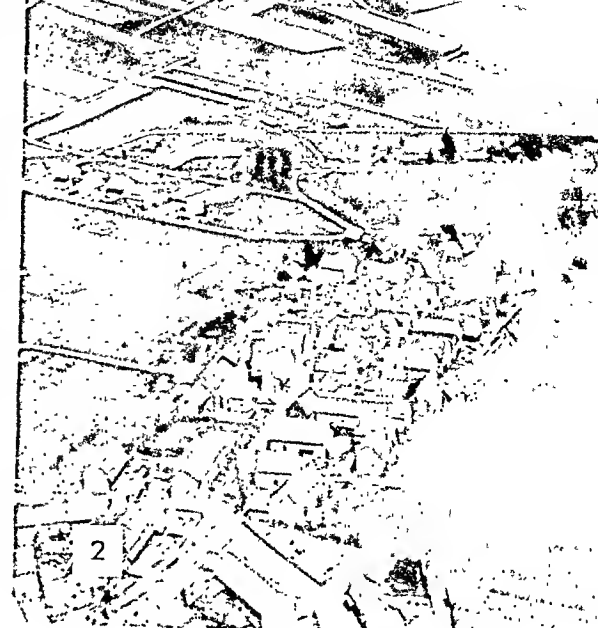
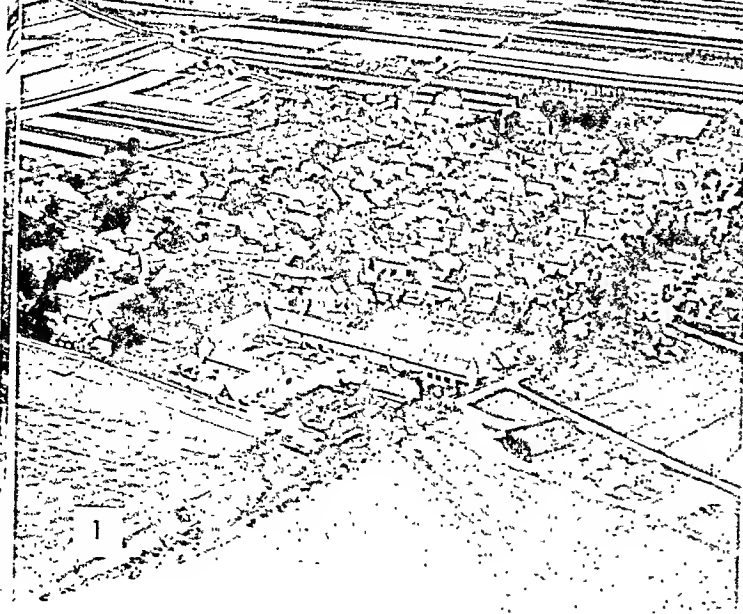


In Europe homes bear the close imprint of local cultures, as modified by climate and the availability of building materials. The group of farms on this page are: (1) an isolated farmstead, built of the local shale and roofed with local slate, near St. Davids, Pembrokeshire, Wales (N. J. G. Pounds); (2) a Basque farmstead from the Pyrenean foothills, near Pau, stone-built with pantiled roof (N. J. G. Pounds); (3) a log-built peasant cottage from Croatia, Yugoslavia (N. J. G. Pounds); (4) the summer dwelling of the peasant of the Hungarian Plain, amid his crops but far from the large, nucleated villages (N. J. G. Pounds); (5) in time this temporary shelter is replaced by a permanent though isolated home, or *tanya*, here seen near Debrecen, Hungary (N. J. G. Pounds); (6) the long farmhouses, stone-built, tiled and often brightly painted, set at right angles to the village street, common in many parts of central Europe, here seen at Nickelsdorf, Burgenland, Austria (N. J. G. Pounds); (7) the brick-built, thatched cottages, sheltering behind their protective dyke, in the marshlands of northwest Germany (Presse- und Informationsamt, West Germany).

severe soil washing and gulying in parts of the Mediterranean lands, of the French Alps, and of Scotland, but in most of northwestern Europe soil destruction is very much less serious than in most other continents. This is partly because of the less torrential rains, partly the more careful cultivation of the soil.

It would be surprising if human influence were not profound in Europe. Man lived there perhaps during the warm phases between the advances of the ice during the Ice Age. The sod was first

broken in northwestern Europe and crops first taken by Neolithic man 4,000 years ago. He cultivated first the dry, warm soils, often derived from loess. Prehistoric hill camps and burial mounds are generally on high ground. Then with better tools, axes first of bronze and then of iron, he advanced into the forest and thicket-covered plain. Heavy was the task of man in spreading from the hill to the valley, from the dry limestone and gravel soils to the damp clay. Yet this expansion of settlement was made necessary by his growing



numbers. An ancient religious play, written during the early Middle Ages, reflects the hardship:

*"Strong are the roots of the briars,
That my arms are broken,
Tearing up many of them."*

The conquest of the woodlands and the extension of settlement were the great achievements of European man during the early and Middle Ages.

Such an extension was necessitated by the growing population. We are accustomed to regard the present-day birth rates of India, China, and Egypt as exceptional. However, the rate of growth of European population in recent centuries was quite as rapid, though its curve of growth has now flattened off. It created a great land hunger. It cleared and colonized much of Europe and later helped to people the New World. The adversity which accompanied it stimulated man to physical and mental efforts.

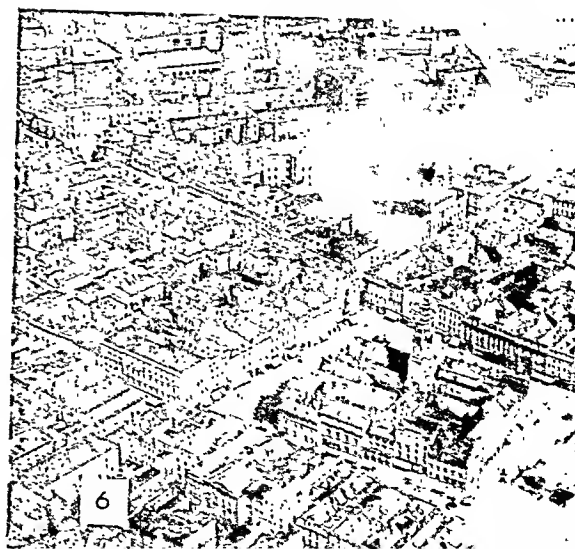
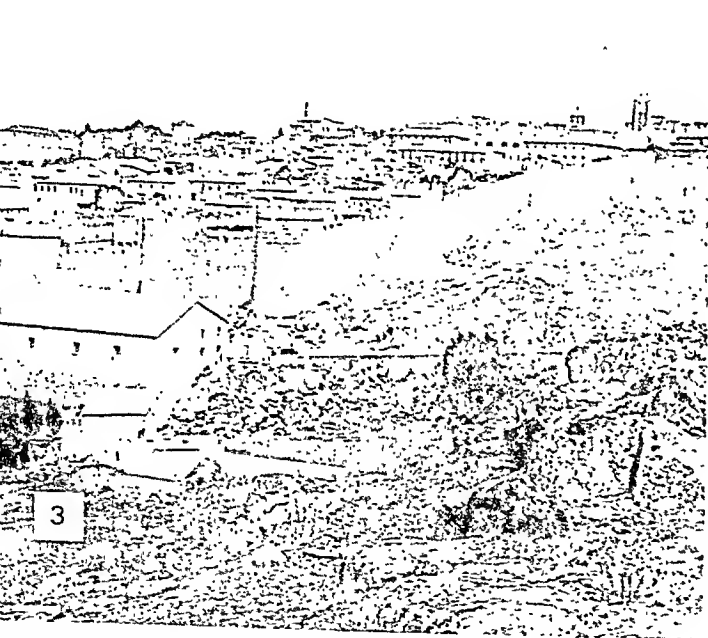
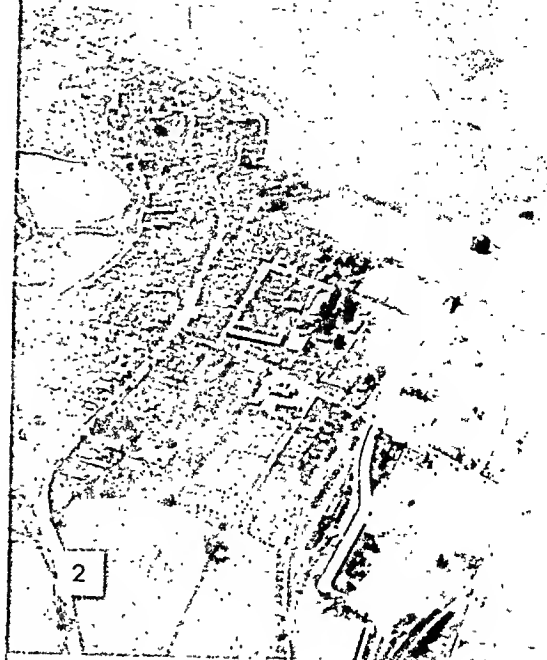
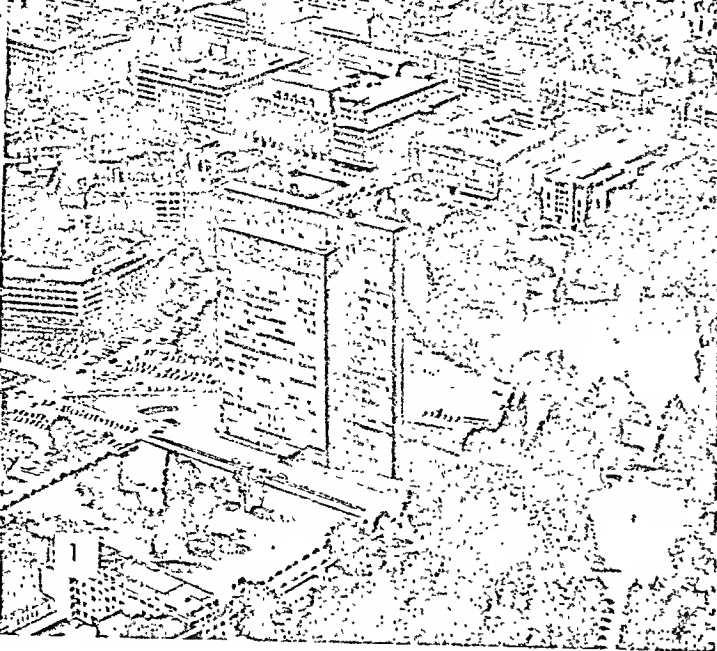
The earliest advances were in Mediterranean Europe. Here the climate and the open nature of the Mediterranean woodland favored his efforts. Western Europe presented greater difficulties—a harsher climate and denser woodland—but also a greater prospect of reward. The soils were in general better, and the distribution of rainfall throughout the year favored a wider variety of crops and the development of pastoral husbandry on a larger scale than had been possible in Mediterranean lands.

Settlement and agriculture spread eastward from western to central Europe. Areas of better soil were cleared and broken up for cultivation by the cooperative effort of the peasants. They laid out their arable fields, made up of long narrow strips. Every peasant family had strips in each field to ensure equal opportunity. Efficiency was sacrificed at the altar of equality. Swamp and heath were circumvented and brought into production only as necessity and opportunity arose. Many such areas have had to await the coming of modern techniques of drainage and land reclamation. The cultivation of some has depended on the modern use of artificial fertilizers.

One of the most promising of the vegetational regions of Europe, the steppe, was the last to be widely brought under cultivation. Its climate is severe, but its black chernozem soil is rich. The obstacle lay partly in the exposure of the steppe to the nomadic peoples, the Tartars, who at intervals came raiding across the steppe from the borders of Asia. The "planting" of the steppe followed the Russian conquest in the seventeenth and eighteenth centuries.

But man has made little impression on the northern coniferous forests and the tundra. Harsh climate and poor soil have deterred the agriculturalist. Cultivated land occupies a relatively small proportion of the whole, and over most of the area, forestry and mining are of greater importance than agriculture.

The patterns assumed by rural settlements and the plans of the buildings within each agglomeration result in the main from economic and social forces. On this page can be seen (1) a tightly nucleated German village, Hupstedt, near Bleicherode (Aerofilms); (2) an "oval" and somewhat less nucleated village, Schwarzenborn (Aerofilms); (3) a nucleated village in the Sierra de Guadalupe, Extremadura, Spain (N. J. G. Pounds); (4) the village of Askrigg, in Wensleyday, West Riding of Yorkshire, England (National Parks Commission); (5) the irregular pattern of settlement, with hamlets and scattered farms in Canton Appenzell (Swissair); (6) the scattered, but nonetheless planned, settlement on the newly reclaimed Northeast Polder, Netherlands (Aerofilms).





7

The immense variety in the form and function of the European city. On this page are seen: (1) the impressive city center of the large West European industrial and commercial city, in this instance Dusseldorf, West Germany (*Bundesbildstelle Bonn*); (2) the unplanned, unwalled town of Tewkesbury, England, lying at the junction of the Avon (bottom right) with the Severn in the distance. At upper left is seen the church of the medieval abbey around which the city grew up (*Aerofilms*); (3) the Spanish city of Avila, Old Castile, still clustered inside its fortified walls in the twentieth century as it was during the wars of the Middle Ages between the Spaniards and the Moors (*N. J. G. Pounds*); (4) at Naarden, Netherlands, more recent fortifications of the seventeenth century still surround the city (*Aerofilms*); (5) the little Austrian market town of Leibnitz, Styria—the wide street dominated by the church was originally the scene of the regular market (*N. J. G. Pounds*); (6) Świdnica (G: Schweidnitz) is a planned city, laid out during the Middle Ages by German settlers; note the square marketplace and the rectangular street pattern (*Plan und Karte*); (7) the steep, narrow streets of a Mediterranean city, designed as much to give shade as to economize space—in this illustration, a street in Dubrovnik, Yugoslavia (*N. J. G. Pounds*).

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Race, Language, and Nationality

3

Europe was peopled by groups which moved in from Africa and Asia. Man may have existed there before the beginning of the Ice Age. It is certain that he was present during the intervals between the successive advances and retreats of the ice. It is probable, too, that the changing physical conditions of the Pleistocene stimulated man to make mental adaptations which allowed him not only to achieve a position of superiority in the animal world but in some measure to control his environment. It is uncertain whether the present population of Europe contains any of the descendants of these Pleistocene inhabitants, but individuals have been found today having physical traits similar to skeletal remains of the earliest known Europeans.

As the ice retreated and the climate ameliorated, peoples moved northward from Africa. Hunters also invaded Europe from the east, along the belt of open grassland which was probably much more extensive then than now. Throughout prehistoric time, the population of Europe was sparse. Contact between one group and another was probably infrequent, and knowledge of inventions and discoveries traveled slowly. Agriculture seems to have been discovered at the end of the Stone Age or the beginning of the Bronze. The discovery may have been made in the Middle East, but it was

presumably many centuries before agriculture was practiced in the eastern Mediterranean and longer still before it reached northwest Europe. Early settlement was in areas which were free of dense vegetation. The dry chalk and limestone uplands, the belt of porous loess soil, and the areas of sand and gravel were the early sites of human settlement by virtue of the fact that primitive man sought areas of open grassland or parkland and avoided the forests. The expansion of settlement from the dry soil to the moist, from the limestone and the chalk to the clay, from the upland to the lowland came later and has occupied the whole of historical time. This extension in the area of settlement accompanied an increase in population.

Race

The many human groups which settled in Europe possessed characteristic physical traits, but intermixture with other groups spread and diluted these qualities. In Europe the intermixture of groups has gone far to break down homogeneity or purity of race. There are now no races in the strict sense of the word. No groups of people show uniformly similar physical traits.

Nevertheless, partly because certain traits tend to be "dominant" and others "recessive," there are regional characteristics. Broadly, brunettes, or people with a dark skin and hair color and brown eyes, tend to predominate in southern Europe. Fair coloring is regarded as characteristic of more northerly lands. Stature is, in general, greater in the north of Europe than the south. The northern peoples are relatively longheaded. The Mediterranean peoples share this characteristic, whereas in central Europe there is a belt, from west to east, of broadheaded peoples.¹

The prevailing "brunetteness" of the Mediterranean region does not exclude many small groups of medium-colored and fair people. In the predominantly blonde regions of the north there are, similarly, many who display brunette qualities.

¹ See C. S. Coon, "The Races of Europe," New York, 1939, for detailed consideration of European racial types.

There is nowhere any uniformity in these racial characteristics, though certain qualities may be said to predominate in certain areas.

The United States contains descendants of people from all parts of Europe. From the racial point of view, the American people display a racial mixture even more complex than is to be found in Europe.

Language

Linguistic divisions in Europe have an importance and in many cases a precision that is wholly lacking in the racial. They constitute deep-rooted barriers between peoples and play a role of great significance in the policies and actions of the states of Europe. There are, in Europe alone, over thirty languages, each spoken by a large number of people, each having a literature of its own, each recognized as a distinct and separate vehicle for the expression of ideas and the conduct of affairs. In addition to these there are numerous "sub-languages" and dialects, having close affinities with one of the major languages, but not generally having a separate literature. Many such dialects have died out in modern times or remain only as a patois spoken by country folk. The *langue d'oc* of southern France, Frisian in the Netherlands, and the Landsmål of Norway are examples.

Linguistic groups are often, though erroneously, termed "races." With the exception of the Lapps, a rather primitive people who came into northern Europe from the east, there is almost no group of people who display a separateness both in language and in physical or racial characteristics. There is not and never has been such a thing as a "French race" or a "German race," though for perhaps a thousand years there has been a French-speaking, as distinct from a German-speaking, people.

Most European languages are of fairly recent origin. Certain European languages, such as Basque and Albanian,² are very old, relics perhaps

² Albanian derives probably from the extinct Illyrian language, but has absorbed many other elements from the Slav and Romance speakers.

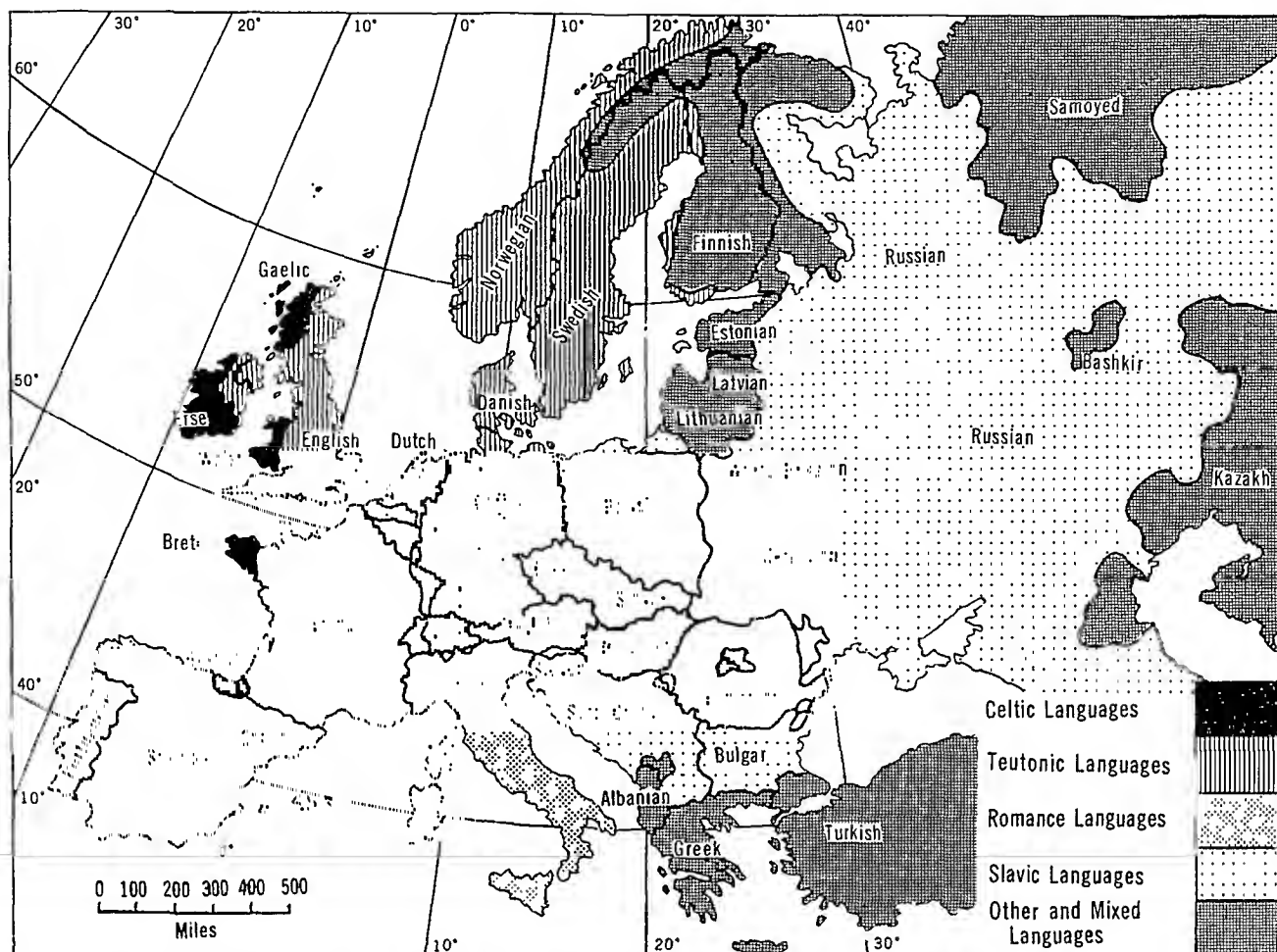


FIGURE 3-1. Predominant languages and language groups in Europe.

of an early group of languages that has since been obliterated in other areas. Most other European languages belong to a single language family, the Indo-Aryan. There are similarities in syntax and frequently in vocabulary throughout these languages, which appear to have had some kind of a common origin. The Indo-Aryan languages are divisible into five groups, within each of which there is even greater similarity. These groups are the following:

CELTIC LANGUAGES

The Celtic languages were brought from central or eastern Europe, possibly in the second millennium B.C. At the time of the spread of the Roman Empire over western Europe, a Celtic language

was spoken in much of Spain and Gaul (France) as well as in the British Isles. In Gaul and Spain it was replaced by the Latin language of the Roman provincials, and it died out completely. In the British Isles, however, the Roman influence was less profound. Though Latin was used in the towns, the rural districts appear to have continued Celtic in speech. After the decline of the Roman Empire and the withdrawal of its legions from Britain, the Anglo-Saxon invaders came, bringing with them their Germanic language. This replaced Celtic over the Lowlands of England, but in the Highland districts of Scotland, Wales, and Cornwall, as well as in Ireland, Celtic languages survived. Bands of Celtic-speaking Britons even crossed at this time to Brittany, the northwestern peninsula of France, and reintroduced the Celtic

tongue which had possibly disappeared from this area under Roman influence.

Gradually, however, the English language, which developed from the speech of the Anglo-Saxon invaders, penetrated the highlands of the "Celtic fringe." The Celtic language disappeared from Cornwall and the Isle of Man. Welsh was spoken only in the mountainous district of north Wales and in parts of western Wales, and Gaelic only in the Highlands of northwestern Scotland. Even in Ireland, the English language made progress. More recently there has been a Celtic revival. The number of Welsh-speaking people has increased (see page 148), and the decline of Erse has been checked in Ireland.

CLASSICAL LANGUAGES

The classical languages consisted of Greek and Latin. Greek survives, much altered in grammar and vocabulary, as the language of Greece and the Aegean area. Latin has disappeared as a living language but remains the language of the Roman Catholic Church, whose documents are published, and debates carried on partly or wholly in Latin, and whose services, until recently, were performed wholly in Latin.

ROMANCE LANGUAGES

The Romance languages have grown from the Latin which was carried by the Roman settler and soldier throughout the Empire of Rome. In some of these lands the Latin language has survived in modified form. In each region it has tended to assume gradually a new shape. In Gaul, Latin ripened into French; in Spain and Portugal, into the Spanish, Catalan, and Portuguese languages; in Italy, into Italian; and in Romania, into Romanian.

The family resemblance between the Romance languages is very close. During the Middle Ages additional languages emerged, including the *langue d'oc* of southern France and the Romansch of the Engadine Valleys of Switzerland. Others were just strongly developed dialects. It was probably the invention of printing, the translation of the Bible into the more strongly developed languages,

and the spread of literacy and education that checked the further development of many of these lesser languages. *Langue d'oc* disappeared before the spread of French; Catalan declined before Spanish; the Walloon dialect of parts of Belgium before French. In Spain, a country where education has made little progress among the masses, there remain today a number of strongly marked local dialects, distinct from the standard or Castilian Spanish in many ways.

The boundaries between these Romance languages in western Europe are generally fairly clearly marked. A sharp line, approximately the national frontier, separates Portuguese from Spanish; the Pyrenees and the Alps separate, respectively, Spanish and Italian from French.

Romanian is spoken by a people remote from the main body of Romance speech. It has been greatly influenced by the Slav languages, and it is very doubtful indeed whether it derives from the speech of the Roman soldiers and settlers who came to Dacia, as the area was known to the Romans. It is possible that a language with Romance affinities was taken into Romania by wandering peoples during the Middle Ages; it is certain that the Romanians have in more recent times consciously modeled their grammar on that of the other Romance languages.

GERMANIC LANGUAGES

The Germanic languages similarly constitute an interrelated group, which appears to have originated in the Baltic region. They attained their present limits in the west in the course of the invasions which brought the Roman Empire to an end. The Franks crossed the lower Rhine, advancing the limits of their intensive settlements to a line which ran (Fig. 3-2) from a point near Boulogne, on the French coast, eastward through the future site of Brussels, then southward across the Ardennes and Lorraine and along the crest of the Vosges Mountains, thence across the Jura Mountains and the Swiss Plateau to the Swiss Alps.

The limits of the German tongue have receded only a little. In northern France it has been largely

replaced by French. French has also made small gains in Lorraine. Elsewhere the language frontier has shown a remarkable fixity and sharpness for a period of over ten centuries.

The expansion of the German language eastward occurred later and was achieved by the advance of Germanic settlers into the then sparsely populated Slavonic territories. The advance was made at first on a broad front, but afterward followed three significant lines: along the Baltic coast toward what is now called "East Prussia," up the Oder Valley and along the loess belt of Silesia and southern Poland, and down the Danube toward the Hungarian Plain.

Within the limits thus defined the German language consisted of a large number of related dialects, which have been grouped into Low, Middle, and High German. The Low German tongue of the northern plain survives in the dialects of Mecklenburg and Pomerania and in the Dutch and Frisian languages. The High German of the south survives as a patois in certain rural areas, such as Alsace. It was a Middle-High German dialect that eventually spread over the whole of Germany as standard German. This spread was aided by Luther's translation of the Bible in the early sixteenth century into Middle German, thereby establishing a model for German prose.

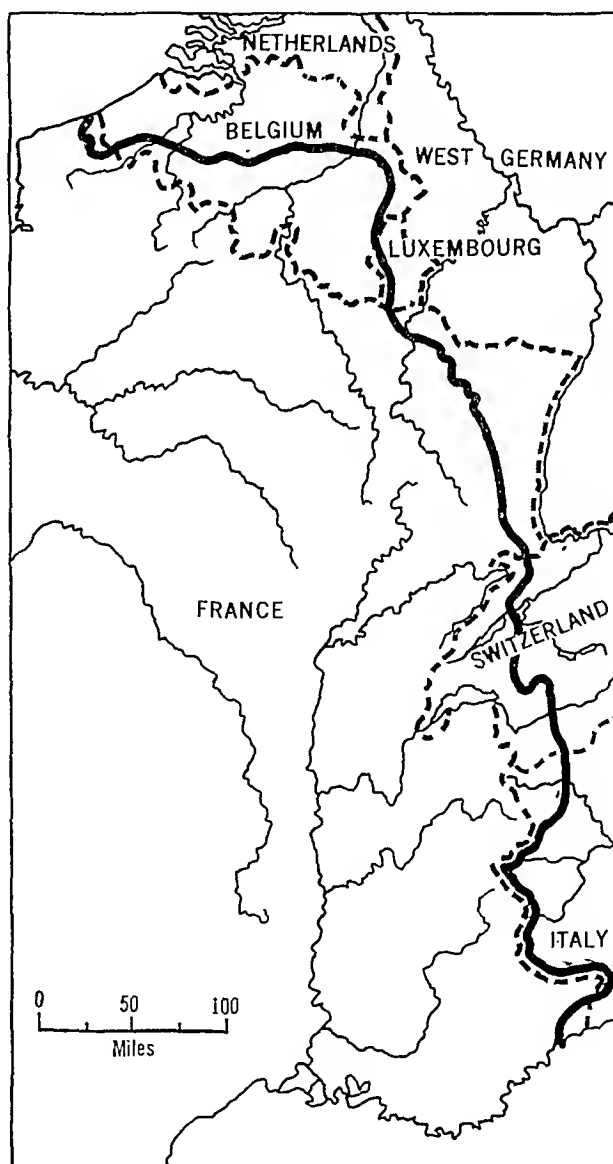


FIGURE 3-2. The Romance-Germanic language boundary in western Europe.

Four small "islands" of German-speaking peoples established themselves farther east, in Poland, Hungary, Romania, and Russia. In these outlying areas, German speech and German culture were jealously and successfully preserved. Since 1945, however, most of these advanced posts of German language have been rolled back toward the fatherland, and most, if not all, of these "islands" have disappeared. The Volga Germans of Russia were forcibly moved into Siberia. Most of those in Poland, Czechoslovakia, and the Danubian lands have been driven back to Austria or Germany. Furthermore, Germans living to the east of the rivers Oder and Neisse, in Prussia, Pomerania, and Silesia, have mostly been forced westward into what remains of Germany. The Germans of the South Tyrol were removed to Austria or Germany early in the Second World War, but have since returned to their Italian homeland.

Dutch and Flemish are so similar that they may be considered as the same language. This is a Low German dialect which has crystallized in the region of the lower Rhine and Zuider Zee into a distinct language. Frisian, spoken on the Frisian Islands and along the north German coast, is related to Dutch.

English is also fundamentally a Germanic language brought to Britain by the Anglo-Saxons and extended gradually over the whole British Isles and, from the sixteenth century onward, to the North American continent, Australia, New Zealand, and the other parts of the English-speaking world. It has, however, incorporated a very great many words of French, Latin, and Greek origin.

Danish is spoken in Denmark. Its southern limit in Schleswig has never coincided closely with the political limits of Denmark, and there is today a Danish-speaking minority on the German side of the boundary. Swedish is spoken in Sweden, in the Finnish Åland (or Ahvenanmaa) Islands, and on parts of the west coast of Finland, where it was taken by Swedish immigrants in the seventeenth century. Norwegian (Riksmål) is closely akin to Danish and is spoken in Norway and the

Norwegian dependency of Spitsbergen (or Svalbard). Landsmål is the nonliterary language spoken in the more remote areas of Norway. The Icelandic language also derives from Scandinavia, but remains today closer to the Old Norse, from which it derived, than other Scandinavian languages.

SLAVIC LANGUAGES

The Slavic languages form a closely related group and appear to have spread from an area which can be roughly defined as eastern Poland and Byelorussia. In the isolation of mountain valleys and forest clearings, many dialects developed. Some have become extinct; others have attained the rank of distinct languages, though their family resemblances remain very clear. The Slavic group of languages can be divided into three divisions, each having three or more subdivisions.

The western Slav group consists of Polish, Czech, and Slovak; the southern Slav group, of Slovene, Serbo-Croat, Bulgarian, and Macedonian; and the third, or Russian, group, of Great Russian, which is the official Russian literary language, and Ukrainian, with its subsidiary Ruthene and White Russian dialects.

Polish is the prevailing language of the Vistula Basin. In historical times it has lost ground in the west to German, but until recently it had advanced in the east. The boundaries of Polish speech are not sharply defined and have given rise to disputes and bitterness. Czech, by contrast, is the language of the upper Elbe Valley, or Bohemia, and the adjacent plains of Moravia. As with the Polish settlement area, the Czech has also been intruded by German-speaking peoples who settled in the mountain fringe of Bohemia. Since the Second World War many of these Germans, whose ancestors had been here for many centuries, either fled or were sent back to Germany. The Slovak language is related to Czech. It is spoken in the Carpathian Mountains of eastern Czechoslovakia.

Slovene, a southern Slav language not too far removed from Czech, is spoken in the Sava Basin

of Yugoslavia. On the north the Slovene area adjoins the German of Austria; on the west, the Italian. The boundary is indistinct and is the cause of frequent political disturbance. Serb and Croat are so similar as to be spoken of as Serbo-Croat. Their difference lies chiefly in the use of the Cyrillic alphabet, derived from Greek, by Serbs and the Roman alphabet by the Croats. Macedonian is often classed as a provincial dialect of Serb. It has, however, incorporated many non-Serb elements and has affinities with Bulgar, another Slav language with, however, Turkic elements which were introduced by the Tatar Bulgar people in the early Middle Ages.

The third Slavic group is Russian. Great Russian was the language of Moscow and has spread with the expansion of the Russian State. It was the official language of the Tsars and was used by the Russian literary masters of the eighteenth and nineteenth centuries. Ukrainian resembles Great Russian. It is spoken over the steppe of southern European Russia; it appears in northern Romania, in the east of the former territory of Poland; and as Ruthenian, it is spoken in the Carpathians. Other Russian dialects, including White Russian, are spoken locally in west European Russia.

NON-INDO-EUROPEAN LANGUAGES

Basque was formerly spoken widely in northern Spain and southwestern France. For many centuries, it has been of diminishing importance. It is still spoken in an area extending from Bilbao in Spain to Bayonne in France and including the western extremity of the Pyrenees. Most who speak it also speak Spanish.

Albanian derives in all probability from a primitive Indo-European tongue, but it has absorbed so many other elements that its affinities are far from clear. It has survived in the mountains of Epirus but has absorbed elements of the Greek and Serbian languages spoken nearby. It remains an important language and is, despite its division into the two distinct dialects, Gheg and Tosk, the chief unifying force in the otherwise

disunited state of Albania. The limits of the language do not correspond to those of the state, and there is a considerable Albanian minority in Yugoslavia.

Another group of non-Indo-European languages was brought into Europe by invaders from the East after the principal language groups of Europe had developed. They belong to the Asiatic, or Ural-Altaic, group. The speakers of these languages followed three routes. One group followed a northern route westward through the coniferous forest belt to Finland. With the exception of the Lapps, these peoples have largely become Westernized, though their ancient language survives as Finnish and Estonian. The second route is via the steppes of southern Russia. Some invading groups, including the Huns and Avars, have left only the memory of their ferocious raids. Others have settled in Europe and have intermarried with the Slavonic-speaking peoples to such a degree that only their language remains to indicate their Eastern origin. The Bulgars, probably a less numerous people, were wholly absorbed by the Slavs among whom they settled, so that today only their names and fragments of syntax and vocabulary witness to their Eastern origin. On the other hand, the Magyar invaders of the last years of the ninth century were able to impose their language on the peoples among whom they settled, and it is spoken today as Hungarian. In the sixteenth and seventeenth centuries the Turks expanded across southeastern Europe as far as the gates of Vienna. From the end of the seventeenth century to the beginning of the twentieth they have been in slow retreat. Small groups of Turks have remained behind in the Balkans, but the only considerable Turkish population lies in the vicinity of Istanbul (formerly Constantinople).

There are thus three important Ural-Altaic languages (Fig. 3-1). Finnish and Estonian are confined to the republic of Finland and to the former independent state of Estonia. Hungarian is the chief language of the people of the plain of the middle Danube, while Romanian and the Slavic languages are spoken in the surrounding hill country. An isolated group, known as the

TABLE 3-1. Table of the Chief European Languages

Language group	Language	Approximate number of people speaking language*	Chief countries where the language is spoken
Celtic	Gaelic	78,000	N. W. Scotland
	Welsh	715,000	Wales
	Erse	500,000	Irish Republic
	Breton		Brittany
Romance	French	51,000,000	France, S. Belgium, W. Switzerland, N. W. Italy
	Spanish	30,000,000	Spain
	Portuguese	9,100,000	Portugal
	Romanian	15,000,000	Romania
	Italian	50,100,000	Italy, S. Switzerland, S. W. France, Corsica, Yugoslav Coast
	Catalan	6,000,000	Spain
Germanic	German	82,000,000	Germany, Luxembourg, E. Switzerland, E. France, Austria, N. Italy, N. Poland
	Norwegian	3,500,000	Norway
	Swedish	7,800,000	Sweden, Finland
	Danish	4,500,000	Denmark, S. Schleswig
	English	55,000,000	Great Britain, Irish Republic
	Dutch-Flemish	16,000,000	Netherlands, N. Belgium, N. France
Slavic	Polish	30,000,000	Poland, Czechoslovakia, U.S.S.R.
	Czech	8,900,000	Czechoslovakia
	Slovak	3,800,000	Czechoslovakia, Hungary
	Slovene	1,500,000	N. Yugoslavia, S. Austria
	Serbo-Croat	11,100,000	Yugoslavia, Romania
	Russian	114,600,000	Soviet Union
	Ukrainian	38,000,000	Ukraine, Russian S.S.R., Poland, Czechoslovakia, Romania
	Bulgar	7,700,000	Bulgaria
	Macedonian	1,100,000	Yugoslavia, Bulgaria, Greece, Albania
	Byelorussian	8,000,000	Byelorussian S.S.R., Poland
Classical	Greek	8,500,000	Greece, Albania, Cyprus
Others	Basque	1,000,000	N. Spain, S. W. France
	Albanian	1,859,000	Albania, Yugoslavia
	Lithuanian	2,200,000	Lithuanian S.S.R.
	Finnish	4,000,000	Finland, Karelo-Finnish S.S.R.
	Estonian	1,000,000	Estonian S.S.R.
	Hungarian	11,850,000	Hungary, Czechoslovakia, Romania, Yugoslavia
	Turkish	25,600,000	Turkey, Bulgaria, Romania, Yugoslavia
	Latvian	1,300,000	Latvian S.S.R.

* Note that the totals are only approximate. Recent statistical data on languages spoken is not available for all countries, and members of many of the smaller linguistic groups, e.g., the Celtic-speaking peoples, are bilingual.

Szeklers (*H.* Szekely), speak Hungarian and inhabit the mountain-rimmed basin of Transylvania.

Turkish is the most widely spoken of these languages. Its European area is Istanbul and the small area of Turkey to the west of the city, but it prevails in Asia Minor and in some of the islands off the west coast of Turkey. In Cyprus, however, Turkish is a minority language.

SUMMARY

The large majority of the population of Europe speaks one of a group of related languages, known as "Indo-Aryan" or "Indo-European." Though these languages have certain similarities in their construction and vocabulary, they are not in general mutually intelligible. The Indo-European language group is divisible into five subgroups. Most widely spoken of these is the Slavic, with about 215 million speakers, including the Russians; next come the Germanic, including English, with about 170 million, and the Romance languages, with about 155 million. Greek and the Celtic languages are Indo-European but are spoken by relatively small groups. The other non-Indo-European groups are also comparatively unimportant; the most widely spoken are Hungarian and Turkish.

Religion

Religion introduces a further element of complexity into the human geography of Europe. The distribution of religious groups and sects bears little relationship to that of either linguistic groups or racial characteristics. Religious differences are becoming of diminishing importance, yet the churches still have political significance, and their architecture in all its regional variety is an important feature of the cultural landscapes. Most Poles and Irish are Roman Catholic. The Scandinavians are Lutheran. Europe is mainly Christian, and the code of morals and respect for the individual which we regard as western European owe much

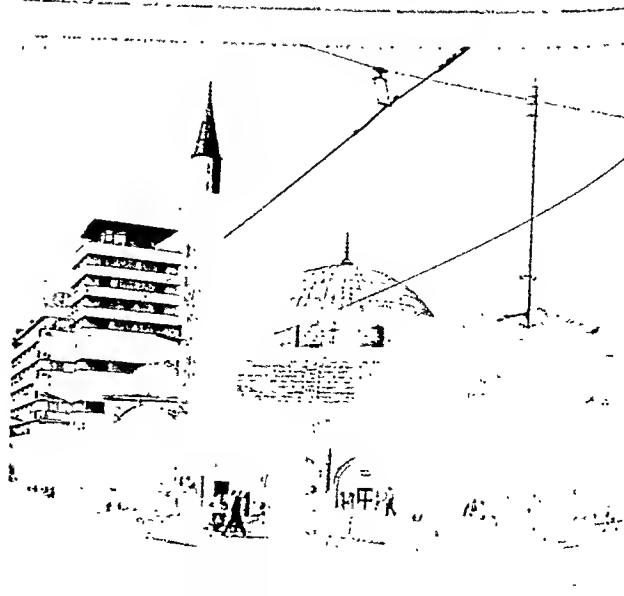
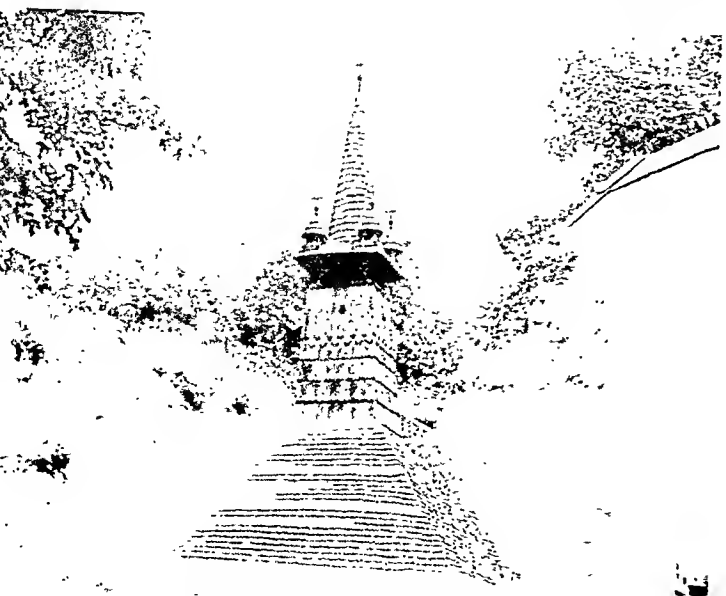
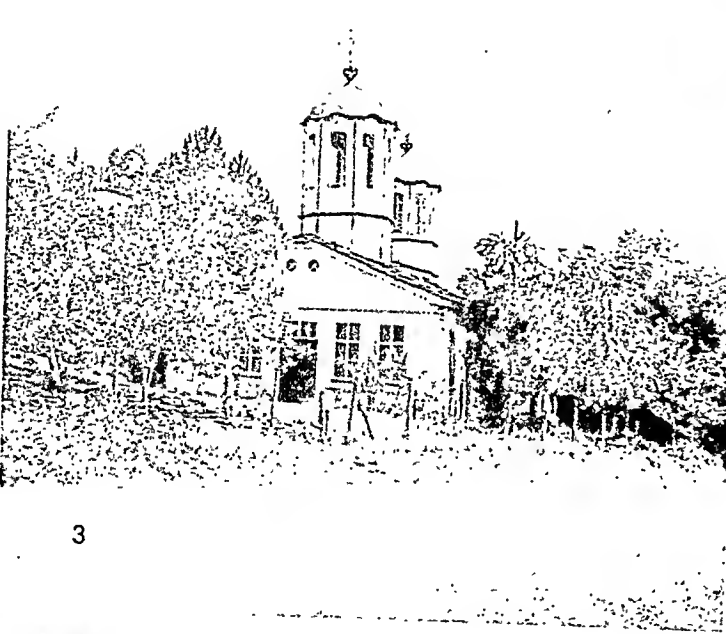
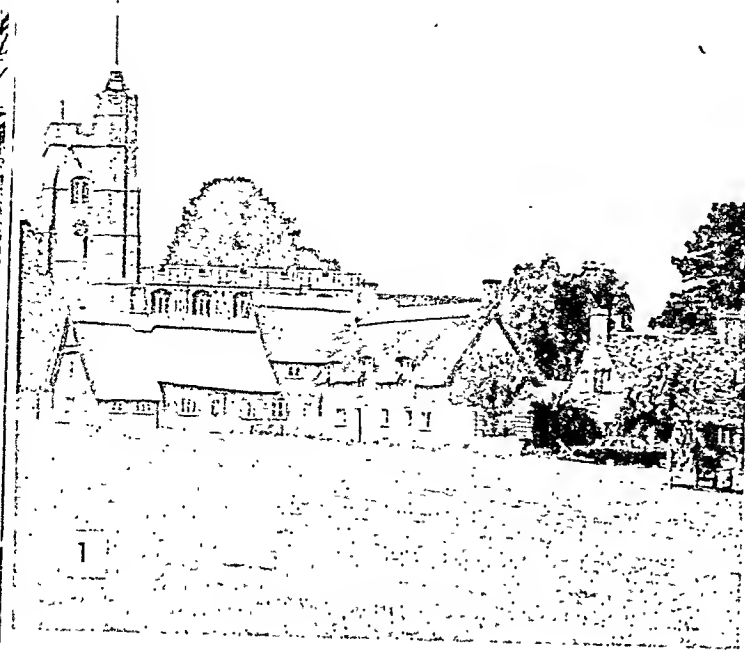
to Christian teaching. The only other important religions are the Jewish and Mohammedan. The latter is significant along the Asiatic and African shores of the Mediterranean rather than in Europe itself, though important Moslem communities are still to be found in the Balkan peninsula. The divisions of the Christian faith that are important are the following:

CATHOLICISM

The Roman Catholic Church has more members than any other in Europe. In Portugal, Spain, and Italy it has no significant rivals. France, though a secular state, is predominantly Catholic. In Belgium also, Catholicism is supreme. In Switzerland, Germany, and Czechoslovakia there is a long tradition of Protestant revolt, but in each of these countries, large and important sections of the population are Catholic. All south Germany and much of central Germany, most of the rural areas of Switzerland, much of Czechoslovakia, and all Austria are also Catholic. Poland, Hungary, and the Irish Republic are also largely Catholic countries.

PROTESTANTISM

"Protestantism" is a general term covering a large number of distinct and sometimes conflicting religious groups which have in common chiefly their detachment from the Roman Catholic Church. Small Protestant groups are found in many Catholic countries. In France, Hungary, and Poland these groups are small, but influential and important. The British Isles with the exception of Ireland, the Scandinavian countries including Finland, and north Germany are predominantly Protestant. The Netherlands, Switzerland, and Czechoslovakia have large Protestant groups. The more important and extensive divisions of the Protestant faith are the Calvinism of Switzerland, the northern Netherlands, and Scotland; the Lutheranism of Germany and Scandinavia; and the Anglicanism (Episcopalianism) of England. All three are of considerable significance in America.



ORTHODOX CHURCH

The Orthodox Church, otherwise known as the "Eastern," the "Greek," or the "Russian Church" is, like the Roman Catholic, a direct growth from the primitive church of the early Christians. The differences between it and the Roman Catholic Church developed during the formative early Middle Ages. Then the Roman Catholic Church, with its center in Italy, dominated western Europe. The Orthodox Church, its center in Istanbul, received the allegiance of Christians in the Balkans, Asia Minor, and the Aegean area. Between lay pagan lands from the Dinaric coast northward to the sparsely peopled forests of northern Europe. Each church expanded. The Serbs became Christians of the Orthodox Church; Croats and Slovenes became in large measure Catholic. The Romanians were brought into the Eastern Church, the Hungarians into the Western. The Czechs were first converted by missionaries from the East but were later reconverted to the Church of Rome. Poles and Lithuanians became Catholic; Russians and Ukrainians, Orthodox.

The line of division between these two branches of the Catholic Church was generally sharp. Only in eastern Poland was it blurred. Here the Polish State expanded and came to include many Russians of the Orthodox faith. The latter were induced to form the Uniate Church. This church became Roman Catholic in doctrine, while retaining its Orthodox ritual, with which the peasantry

was familiar. This church continued to exist until 1946, when it was suppressed by the Soviet government and its members absorbed into the Orthodox Church.

ISLAM AND JUDAISMS

Islam, or Mohammedanism, was formerly more extensive in Europe than it is today. During the eighth century the Arabs carried Islam into Spain, where it survived in the south into modern times. It was similarly carried by Turkish invaders into the Balkans, but here, too, it disappeared with the cessation of the Turkish rule. But the long period of Turkish rule has left a deep impression on the Balkans. Islam made many converts among the native peoples, and some groups of Moslems have survived the retreat of the Turks. Particularly in southern Yugoslavia and in Albania the mosque and the minaret are still conspicuous features of the towns, and in Turkey, Islam has remained the dominant religion. Through the Middle East, Mohammedanism prevails. In Turkey it is no longer protected and assisted by the state but nevertheless is still an important force in the lives of the people.

Judaism, never an important force in European life, has lost much of its former importance with the destruction of much of the former Jewish population of central and eastern Europe during the Second World War. It is estimated that at least 5,750,000 Jews perished at this time. Most were

The church is a common and sometimes a dominant feature of the European landscape. Its architecture is usually traditional, though strongly influenced by the availability of local building materials and climate. On this page are illustrated (1) an English parish church (Cavendish, Suffolk) built of flint, with the angles and window mullions of cut stone brought from a distance; (2) the baroque "onion dome" of a central European village church—this one is near Vienna; (3) the rural church of the Orthodox or Eastern faith: this photograph was taken near Botevgrad in northeastern Bulgaria; (4) the more sophisticated Orthodox city church, this one in Bucharest, Romania; (5) the wooden church, occasionally found in western Europe, but common in the forested and mountainous regions of eastern. This one is from the Carpathian Mountains of northern Romania; (6) the Mohammedan mosque is rare in Europe, and has been removed even from many of the areas of former Turkish conquest; nevertheless, some remain, including the well-known "Turkish Church" in Sofia, Bulgaria. (All N. J. G. Pounds.)

from Germany and Poland, but the Jewish communities of France, the Low Countries, Czechoslovakia, and the Danubian countries also suffered severely. It is possible that the size of European Jewry was reduced by half, and many of those who survived the holocaust have migrated to Israel.

Nation and State

The peoples of Europe are divided into groups each having some degree of homogeneity. This may show itself in a common language, common history and traditions, or a common respect for certain political principles and traditions. Most nations are also held together by an allegiance to a common government. The Poles did not cease to be a nation when they were partitioned among Prussia, Russia, and Austria. The Germans in the past were emphatic in their claims that a German is a member of the German nation by virtue of his language and culture whether he lives in Germany or not. In modern times there has been a strong tendency for the nation group to try to become a political unit or a state. At the end of the First World War several nations achieved the status of independent states, some of them for the first time. In the erection of these new political units and in the demarcation of their boundaries, language was generally taken as the criterion of nationality. The political scheme set up in 1919-1920 proved neither successful nor permanent. The nation is an important division of the peoples of Europe, and the desire of most national groups to become independent, self-governing political units is obvious and natural. On the question of how to distinguish one nation from the next there has been no agreement. The following bases of division have been used:

LANGUAGE

Language seems the most reasonable basis. Germany has been foremost in urging that language forms an adequate basis for the nation. As early as 1807 J. G. Fichte¹ claimed that Germany

should embrace all lands where the German language is spoken. This doctrine, carried to its extreme, resulted first in German territorial demands on her neighbors and then in the war of 1939. Frontiers of the Danubian and Balkan lands, on the borders of Belgium and Luxembourg, and frontiers of Germany and Poland have been made to follow, as nearly as possible, the linguistic divisions. Rarely, however, and especially in eastern Europe, was the division between neighboring language groups sufficiently clear-cut to be followed. More often the use of one language passed gradually into the use of another, and an equitable division on a linguistic basis was impossible.

TRADITION AND HISTORY

Tradition and history have also provided a basis of definition of the nation-state. The state of Switzerland is the political expression of the Swiss people, who have collectively four official languages. Three of these, French, German, and Italian, are the principal languages of neighboring political units. Clearly language is neither bond of union nor basis of definition of the Swiss State. The Swiss are distinguished from their neighbors by their history and traditions, by a long-established mode of government, and by their way of life.

In the United Kingdom, France, Switzerland, the Low Countries, and Scandinavia, tradition rather than language is the basis of the nation. In Germany, Poland, and the central and eastern European countries, language tends to be more important.

Many of the political ambitions of European nations remain unsatisfied; some are mutually exclusive. Certain groups, some of them linguistic, such as the Catalans, have for many years demanded a degree of local autonomy which, if granted, would break up an established political unit. France's long-cherished dream of extending her frontiers to the Rhine conflicts with the Germanic conception of a state embracing all for

¹ See particularly his famous *Addresses to the German Nation*, delivered in Berlin, 1807.

whom German is the mother tongue. Other nation-states have ambitions to include territories which they possessed, perhaps only for a short period, at some remote time in their history. These sterile imperialisms are mutually incompatible. The Greater Bulgaria, reminiscent of the medieval state of Simeon the Great, would include part of Yugoslavia and Greece. Yugoslavia has its memories of a Greater Serbia, which included parts of what is now Bulgaria. Some Poles still dream of the Greater Poland which once extended into the Ukraine, Lithuanians of the ancient kingdom of Lithuania, and Germans of Grossdeutschland. The problems of the nation-state are not near solution; the ambitions and aspirations of nations will perhaps again play a vital part in the affairs of Europe.

Political Divisions

On the mainland of Europe are today no fewer than 24 political units which claim to be sovereign. In addition to these, the United Kingdom of Great Britain and Northern Ireland with the Irish Republic (Eire) occupy the British Isles. The political units of Andorra, Monaco, San Marino, and Liechtenstein are too small to be of great political importance but are in very differing degrees of the larger states which surround them. To this list must be added the Vatican city-state, territorially the smallest of them all, but politically perhaps one of the more powerful. Gibraltar, politically distinct from Spain, is a dependency of Great Britain.

The student should attempt to familiarize himself with the political map. He should be able to visualize each political unit, to see its shape and size in the setting of its neighboring states, as well as to superimpose the political frontiers onto the framework of mountain, valley, and plain. In the following chapters Europe and the Mediterranean countries are, as it were, taken to pieces, and each political unit or, in certain instances, group of political units is looked at separately. It is most convenient to base this regional study on the political divisions, but the student must always

bear in mind that there are few abrupt boundaries in nature. The regions of one country are often continuous with those of the next. Boundaries are the limits of political obligation; in Europe they are artificial, perhaps lines of white posts or barbed wire. Fields, villages, and people are usually similar, in fact, almost the same, on each side of these lines. The division of Europe into states is an artificial one; slowly it is being reversed by the creation of the European units which we shall examine in Chap. 5.

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4

The Economic Base

In the later chapters of this book the continent of Europe will be divided into its many political pieces, each of which will be examined separately and without overmuch reference to its neighbors in the European mosaic. Political boundaries are of far greater importance in Europe in separating different uses and developments of the land than are the "state lines" in the United States. But despite the particular slant given to agriculture, industry, or transportation by the policies of national governments, it is possible to see a *European* pattern of agriculture and industry. It is important that we should have a view of Europe as a whole. As a functional European unity gradually takes shape, it will be the continental, not the national, patterns of economic activity that will be of importance.

European Agriculture

There are few areas of Europe where crop cultivation is not practiced, and in most parts it is the predominant type of agriculture. Forest and pasture prevail over large areas of the north and also in mountainous areas of central

and southern Europe. Crop husbandry is relatively unimportant in much of the Mediterranean region of summer drought.

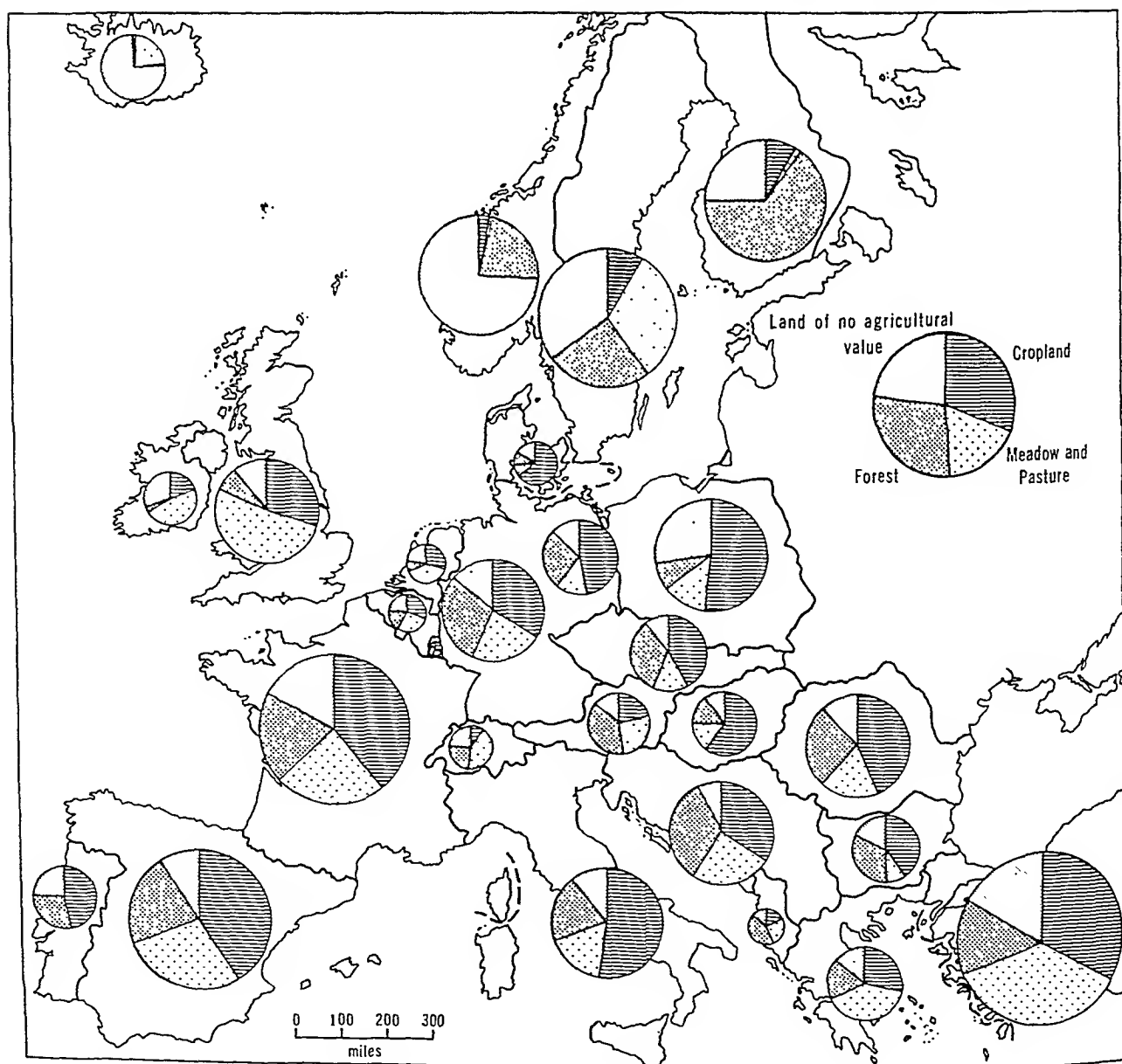
The map (Fig. 4-1) shows the dominant types of land use in the countries of Europe. Only in Scandinavia and Finland, Switzerland and Austria, and the Balkan countries and Turkey does farmland constitute less than two-thirds of the land area of the country. Elsewhere, farmland, much of it meadow and pasture in some countries like the United Kingdom, the Irish Republic, and the

Netherlands, may be said to form the dominant type of land use.

Cropland, most of it used for cereal crops and roots such as potatoes and sugar beets, is of some importance in almost all parts of Europe except the Alpine regions and the far north. It assumes a relatively great importance in a number of restricted areas, where it forms over half the total land area. These are:

1. The northern and eastern parts of the Spanish Meseta, famous as a wheat-growing region.

FIGURE 4-1. Agricultural land use in Europe.



2. Northern and northwestern France, which includes some of the best agricultural land of Europe, together with small areas in southern France.

3. Eastern England.

4. The Po Valley of northern Italy, the plains which border the Apennines in central Italy, and much of the island of Sicily.

5. Denmark, the extreme south of Sweden, and the Baltic coastal regions of east Germany and Poland.

6. A broad belt of eastern Europe which extends from Bohemia and the Hungarian Plain eastward through the Russian steppe to the borders of Asia. This belt is divided by the Carpathian Mountain system, with its scanty agricultural land, into (a) a more northerly part which includes much of Poland and Romania as well as the Soviet Union, and (b) a more southerly part which extends from Austria through the plains of Hungary into Yugoslavia and northern Bulgaria.

There are few strong contrasts in the crops grown. In general about half the cropland is devoted to cereal crops—more than half in the Balkans, very much less in the cool climate of northern Europe. Wheat is the most important cereal in western Europe, rye in eastern, corn in the Balkan peninsula, oats in the cool damp north, and barley on dry soils and in rotation with wheat. A relatively large percentage of the arable land in northern Europe is under grass, suited to the damp climate and leached soils.

As a general rule, crop yields decline from the west toward the east. In eastern and southern Europe farm equipment is least adequate, farming methods most backward, and improved seeds and fertilizer, both organic and artificial, least used.

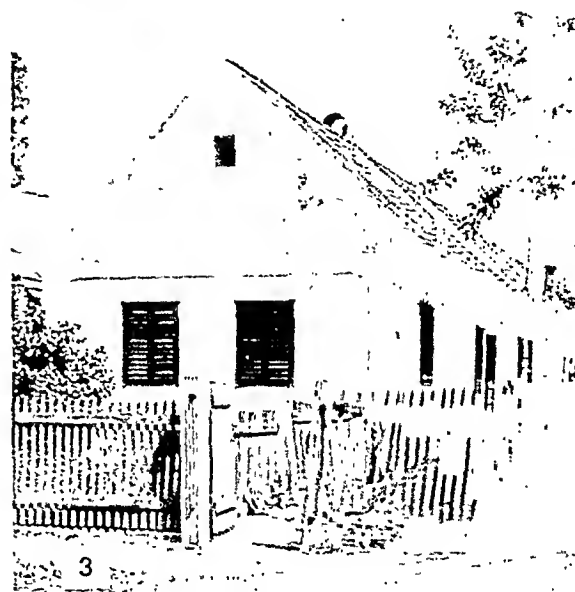
There is a steady progression from the scientifically managed and well-equipped farms of eastern England or northern France through the Low Countries and Switzerland to less-well-conducted farms in Germany. Within Germany, methods are much superior in the west to those in the east, while eastern Germany is still better in these respects than Poland, Romania, and the Balkans. A similar transition occurs in Italy between the relatively good agriculture of the Lom-

bardy Plain in the north and the backward south and Sicily—similarly between northern Spain and southern. Conversely there is a decline northward from the good farming country of eastern England to northern Scotland, Wales, and Ireland.

Agriculture is most backward and least productive in those areas where most people depend upon it; in consequence, land of indifferent quality has to be cultivated. Here the pressure of population, with no important alternative employment, encourages the cultivation of inferior and marginal land. As long as the return to the cultivator for his efforts is barely enough to sustain life, there is no surplus for the accumulation of agricultural capital. It is highly desirable to grow less cereal and more fodder and rotation grass, both to improve the soil and to raise the level of nourishment, but this reduces the total *volume* of food produced and hence fills fewer stomachs. Volume, not quality, of the crop is the most important consideration in the agriculture of these poorer areas. Animal husbandry, which gives the least food per acre, is the least important.

Until recently agriculture throughout Europe has been dominated by tradition. Over much of the continent the pattern of fields was little better than medieval. Each farm holding consisted of several strips which lay intermixed with those of others through vast open fields. Not only were the parcels of land worked by a single farmer widely scattered, they were also uneconomically small. "Of all the afflictions of the European farmer," wrote P. Lamartine Yates, "fragmentation must be reckoned the worst." It is found at its worst in a belt which stretches from northern France and the Low Countries southeast to Italy and Austria. "In these districts and countries a farm of 10 ha. (about 24.7 acres) may be divided into 50 separate plots, a farm of 20 ha. into a hundred plots or more. Cases are quoted of single fruit trees being shared between two owners. Plots will vary in size from 1 ha. or more down to one-twentieth of a hectare or less."¹

¹ P. Lamartine Yates, *Food, Land and Manpower in Western Europe*, London, p. 174, 1960.



Plowing in Old Castile, Spain. The farmer uses a primitive, ox-drawn plow that merely scratches the soil, without turning it over. In the background is the Sierra de Guadarrama. (N. J. G. Pounds.)



The disadvantages of such a system of land tenure are obvious. Parcels of land are too small for modern machines to be used; very few ever abut on roads; and although much land is wasted in field paths, few can be used by anything more than a horse or an ox. The progressive farmer is held back by the conservatism of his neighbors. Comparatively little fertilizer is used, and farming methods have changed little for decades or even generations.


MODERNIZATION OF AGRICULTURE

Since the end of the Second World War there has been a marked change in Europe's agriculture. The agriculture of Denmark, the Netherlands, parts of the United Kingdom, and some other west European countries had already become more progressive. The productivity of land and animals had already been greatly increased by the application of modern techniques; machines had been introduced, and the input of labor greatly reduced. In these areas agriculture had begun to rival industry in its emphasis on mechanization, advanced technology, and specialization and division of labor.

Since the end of the Second World War these developments have been extended to most parts of the continent. The first few years after the war were occupied with restoring the land and rebuilding agriculture. By 1950 the prewar level of production had been regained almost everywhere and, in fact, exceeded in much of western Europe. Only in eastern Europe, where the devastation had been greater and large numbers of people had been uprooted and forced into exile, did output in 1950 fall significantly short of the level from 1934 to 1938.

During the 1950s there was a marked rise of nearly 3 per cent per year in agricultural production almost everywhere. The rise was greatest in the Soviet Union, where large areas of fresh land were brought under cultivation. In eastern Europe it was only a very little less than in southern and western. This increase in output has been the direct result of the application of capital and technical knowledge to agriculture. Everywhere progress has continued to be made in the consolidation of scattered farm holdings and in the creation of compact, workable farm units. This recent revolution in the structure of agriculture has made possible more radical changes in its

The great variety of European farms is illustrated on this page. The photographs show (1) an exclusively pastoral—cattle and sheep—farm in the English Pennines (*National Parks Commission*); (2) a German farmhouse in Württemberg lies directly on the village street; manure is accumulated by the front door, and human beings and animals live snugly under one roof (*N. J. G. Pounds*); (3) in much of Hungary the farmhouses are individually long, narrow buildings, closely spaced and set at right angles to the road. This farm is in the Bakony Forest, west of Budapest (*N. J. G. Pounds*); (4) the collective farm has become in recent years the dominant feature of the landscape of much of eastern Europe. This collective lies between Ploesti and Bucharest, Romania (*N. J. G. Pounds*).



Much of southern Europe is hard country to farm. Note how thin and widely spaced are these rows of barley in the stony, granitic soils of northern Portugal. (N. J. G. Pounds.)

technology. Small, scattered holdings were unsuited to the use of tractors, and farmers were obliged to rely heavily on hand labor and horse traction. The creation of larger units made possible the use of larger units of machinery. Everywhere the use of tractors increased. It tripled in northwestern Europe between 1950 and 1958, and increased considerably also in eastern Europe and the Soviet Union. The use of fertilizer increased most sharply in northwestern Europe, but to a considerable extent everywhere.

Concurrent with this improvement in the efficiency of agriculture there went a decline in the proportion of the population engaged in farming. This was most marked in West Germany, where it fell by over 25 per cent; least in Belgium, where the very large number of small holders who farmed only as a part-time occupation greatly complicated the problem.

COLLECTIVIZATION

In northwestern and southern Europe the change was effected voluntarily by the farmers, with the aid and encouragement of the government. It was piecemeal and incomplete, but at the same time made no revolutionary break with the past. In eastern Europe things were different. Here the peasants, technologically and scientifically very much less well equipped than in the West, tended to resist change, and so change, in the form of collectivization, was imposed upon them. Every country in eastern Europe experienced collectivization. In the Soviet Union the process was carried through to its completion. In eastern Europe the process was begun and then reversed in Poland

and Yugoslavia, but in Czechoslovakia, Hungary, Romania, Bulgaria, and Albania the greater part of the farmland is now collectivized.

Collective farms were built up by the merging of the small farms of the community, the creation of very large fields, the mechanization of agriculture, and the reduction of the poor but free peasantry to the status of wage earners on state-owned farms. The peasants in general resented the process, and worked less willingly and less well on another man's land than they would have done on their own. Agricultural output dropped, and there were food shortages. On the other hand, however, the collective used less labor than the peasant farms had done on the same area, and collectivization was one way of meeting the labor shortage that developed in some parts of eastern Europe.

Beside the collectives there appeared "state farms." These were state-operated more for purposes of experiment and plant and animal breeding than for simple food production. Together these two types of farm made up the socialized sector of agriculture. In Poland and Yugoslavia, where the resistance of the peasant to collectivization has been strongest, the socialized sector has remained

TABLE 4-1

East Germany	89.1 per cent
Poland	13.1 per cent
Czechoslovakia	87.4 per cent
Hungary	93.2 per cent
Romania	93.4 per cent
Yugoslavia	5.9 per cent
Bulgaria	89.5 per cent
Albania	85.0 per cent

In the limestone hills of Yugoslavia, the peasants have in the course of centuries cleared small areas of the steep slopes of stones and built them into steps for ease of cultivation. This photograph was taken in the karst of Montenegro. (N. J. G. Pounds.)



small. The proportions of the total agricultural land occurring within the socialized sector in the countries of eastern Europe are given in Table 4-1. Collective agriculture in the Soviet Union is discussed in Chap. 36.

SIZE OF HOLDINGS

Throughout most of Europe farms are far too small. The farm family could cultivate a larger area with little or no greater expenditure of labor, and it has been part of public policy in western Europe to bring about some enlargement in the size of farms. The various efforts at land reform in the 1920s and 1930s, especially in eastern Europe, aimed to do this by breaking up large estates and very large peasant holdings and distributing their land to create new holdings or enlarge existing ones. Reform of this kind is, of course, conditioned by the limited amount of land that can be used in this way. The solution, of course, lies in removing people from the land, and this is, in part, the objective of collectivization.

In western, central, and southern Europe, where such drastic methods have never been employed, farms remain too small. In many countries the law encourages the division, not merely of the farm itself, but also of every component strip of land between heirs, and without alternative urban or industrial employment, younger sons assert their right to remain at home and cultivate farms of ever diminishing size.

The diagram (Fig. 4-2) illustrates the seriousness of the problem. In Italy, Portugal, and Greece (there are no figures for Spain), two-thirds or more of all farm holdings are under 5 hectares

(12.4 acres), and in none of these countries do farms of the still relatively small size of 10 to 20 hectares make up as much as a fifth of the total. Only in France, the United Kingdom, the Irish Republic, and Denmark can farms be said even to approximate a workable size. This diagram excludes all farm holdings of less than 1 hectare (2.47 acres), as there is no pretense that these can afford full-time employment for a farm family. Yet in 1958 in western Europe alone 3.8 million out of 14.3 million holdings were of less than this size.

LAND USE

It will have been clear from the discussion of the size of farms that in Europe the greatest possible agricultural use is made of the land. The pressure of rural population and the need to reduce as much as is practicable the import of foodstuffs makes this essential. On the other hand the nature of the soil and the limitations of climate greatly restrict the uses that can be made of the land. Large areas of the high plateaus of Scandinavia, with their subarctic climate, offer very little scope; the same is true of much of the Alpine belt, stretching from Spain into the Balkans. The hills of central Europe, extending from France into Poland, have a less severe climate, but the qualities of soil and slope go far to deter the farmer. The glacial sands and gravels, especially in the Netherlands, Denmark, Germany, and Poland, can sometimes be reclaimed for agricultural use, but generally they demand so disproportionate an input of labor that the task is not worthwhile. Usually they are best planted with conifers.

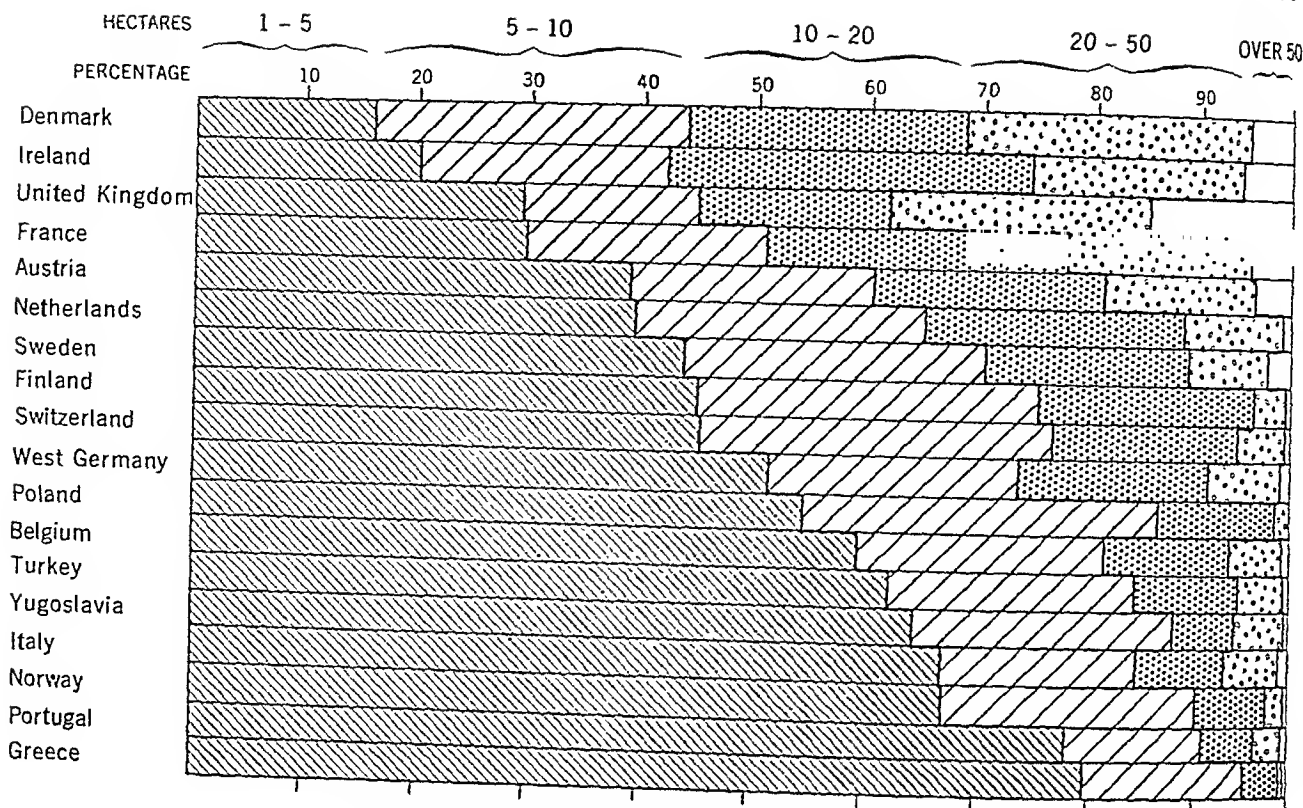


FIGURE 4-2. Size of agricultural holdings in Europe; only countries extensively collectivized have been omitted.

The result is that the area of cropland varies from over 60 per cent in Denmark down to 6 per cent or even less in the remainder of Norden. In Iceland, the extreme case, it covers only 0.5 per cent of the land surface (Fig. 4-1). Grassland is most extensive in the mild, humid regions of northwestern Europe, and forest in Scandinavia.

Forest is no longer important in most European countries. In the United Kingdom it covers only 7 per cent of the area; in Denmark, only 10 per cent, and in the Netherlands, only 8 per cent. It covers a larger proportion of the area in the more mountainous countries, and in Norway, Sweden, Finland, and the more northerly parts of the Soviet Union it is a dominant form of land use. Though forest is everywhere of some commercial importance, this is really considerable only in the northern forest belt and in certain areas of central and eastern Europe, notably Germany, Czechoslovakia, and Romania.

The remaining category of land use is made

up of barren land, such as the arctic tundra, the rocky waste of high mountains as well as land that is built up or used industrially. These are most extensive in the Scandinavian countries, but is also important in such developed countries as those of northwestern Europe.

In recent years geographers have given much time to the preparation of land-use maps—large-scale maps in which the main categories of land use are shown by different types of color or shading. Most famous of these was the Land Utilisation Survey of Great Britain, made between 1929 and the outbreak of the Second World War, and published in maps on a scale of one inch to the mile. The pattern of land use in the area surveyed has since undergone a radical change, and the original survey is now an historical document. A new survey has now been undertaken and a few sheets have been published (see Bibliography). In no other country has there ever been a land-use survey at once so detailed and so

complete as that of Great Britain, but a number of less-detailed maps on a smaller scale have been prepared in other countries: parts of Germany, the whole of Poland, Austria, and Italy are examples.

EMPLOYMENT IN FARMING

The proportion of the population of the state engaged in farming is directly related to the considerations already mentioned. In the western countries of large farms and efficient farming the farmers account for only a small fraction of the total. In the United Kingdom, where the value of farm output per person employed in agriculture is the highest, the proportion is less than 6 per cent of the employed population. In Belgium-Luxembourg it is about 11 per cent, and in the Netherlands and West Germany, 16 per cent. It

rises, among the west European countries, to over 50 per cent in Spain and Portugal, and even higher in some of the east European countries. Table 4-2, relating only to the countries west of the Iron Curtain, shows how close is the relationship among size of holding, agricultural output per farmer, and the ratio of the farming community to the whole.

IMPORT AND EXPORT OF FOODSTUFFS

Europe is, on balance, a heavy importer of foodstuffs. Dependence upon imports varies between the United Kingdom, where about 50 per cent of the food consumed is imported, and Portugal and Spain, where there is a high degree of self-sufficiency in ordinary foods. It also varies from year to year in response both to the accidents of climate and the contingencies of government pol-

TABLE 4-2

Country	Agricultural output per active male, 1955, in U.S. dollars	Active males in agriculture, as percentage of total, 1945-1962	Percentage of the Gross National Product derived from agriculture
United Kingdom	2,310	6	4
Belgium-Luxembourg	2,260	13	7
Denmark	2,000	24	20
Sweden	1,905	24	—
Netherlands	1,815	10	11
Switzerland	1,745	11	—
West Germany	1,685	15	7
Norway	1,515	19	12
France	1,510	18	40
Finland	1,310	32	20
Austria	1,140	22	11
Irish Republic	1,110	49	26
Italy	820	44	17
Greece	570	52	32
Spain	435	48	27
Portugal	385	42	26

SOURCE: After P. Lamartine Yates, *Food, Land and Manpower in Western Europe*, London and New York, 1960; *Statistical Yearbook*, United Nations, 1961; *Production Yearbook*, F.A.O., 1963.

icy. As a result of government action the degree of dependence on imported food can be decreased, though often only for a short period. The United Kingdom was able to increase its domestic food production during the Second World War, but only by ploughing up and cultivating grassland, which was unsuitable for long-term cultivation.

The east and south European countries import little, and before the Second World War some, such as Bulgaria, Romania, and Hungary, actually exported more than they imported. But as we have seen, the relative self-sufficiency of these countries implies, not that their domestic production is abundant and varied, but rather that they lack the purchasing power which would enable them to live better.

There is little international trade in fruit and fresh vegetables, most countries producing as much as they consume. There is, however, a movement of "earlyies" and of certain fruits from Italy, southern France, and Brittany to more northerly countries. All European countries produce potatoes for their own needs, and most, especially France, East and West Germany, Czechoslovakia, and the United Kingdom, supplement the import of sugar by growing sugar beets. In some—for example, Greece—specialized agricultural products such as olives and olive oil, currants and other forms of dried grapes, and tobacco are of great importance, and their export pays for the import of meat and the bread crops.

In western Europe as a whole the level of food consumption has risen markedly over the past century. The improvement has consisted, in part, in the substitution of meat, milk, and other animal products for bread and root crops; this has, in turn, brought about an increase of grassland and meadow, and a consequent diminution in the acreage used for grain crops as well as a greater dependence on imported grains. This change has been most marked in the British Isles, Denmark, and the Netherlands, but has also taken place almost everywhere, as, in the interests of better health, it should. Since more food is, in general, produced from an acre of cropland than from a similar area of grazing land or fodder crops, the effect of the change has been to increase Europe's

TABLE 4-3. Food Imports and Exports as Percentage of Total Import and Export Trade, 1962

Country	Import	Export
United Kingdom	33	6
West Germany	25	2
France	21	15
Switzerland	15	5
Austria	12	4
Finland	11	4
Denmark	14	54
Greece	14	25
Iceland	12	94
Ireland	12	63
Italy	18	14
Netherlands	14	25
Belgium-Luxembourg	12	5
Spain	20	54
Sweden	12	3
Portugal	13	28
Norway	10	17
Yugoslavia	15	30

SOURCE: *Trade Yearbook*, F.A.O., Rome, 1963.

U.S. K6
dependence on food imports. This has in turn made it more than ever necessary that manufacturing industries be intensified and exports stimulated in order to pay for the mounting volume of imports. Table 4-3 provides some measure of the dependence of European countries on imported foodstuffs.

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European Industry

The import of foodstuffs, important in almost every country of Europe, is paid for mainly in two ways: by the export of the products of European manufacturing industries, supplemented by a few agricultural specialties, and by the services in banking and finance, shipping and commerce, rendered by Europeans to countries in other parts of the world. Europe's industrial preeminence is based upon its very large fuel resources and its wide range of metalliferous mineral deposits.

TABLE 4-4

Mineral	European production, metric tons		As percentage of world output in 1962
	1938	1962	
Coal	579,600,000	593,436,000	30
Lignite (brown coal)	232,089,000	519,031,000	76
Petroleum	8,100,000*	32,026,000	3
Iron ore (metal content)	32,400,000	55,063,000	23
Bauxite	2,150,000	6,617,000	23
Lead ore (metal content)	302,000	550,000	27
Zinc ore (metal content)	540,000	827,000	26

* One metric ton = 7.3 barrels.

SOURCE: *Statistical Yearbook*, United Nations, 1963. Not included: Turkey, U.S.S.R.

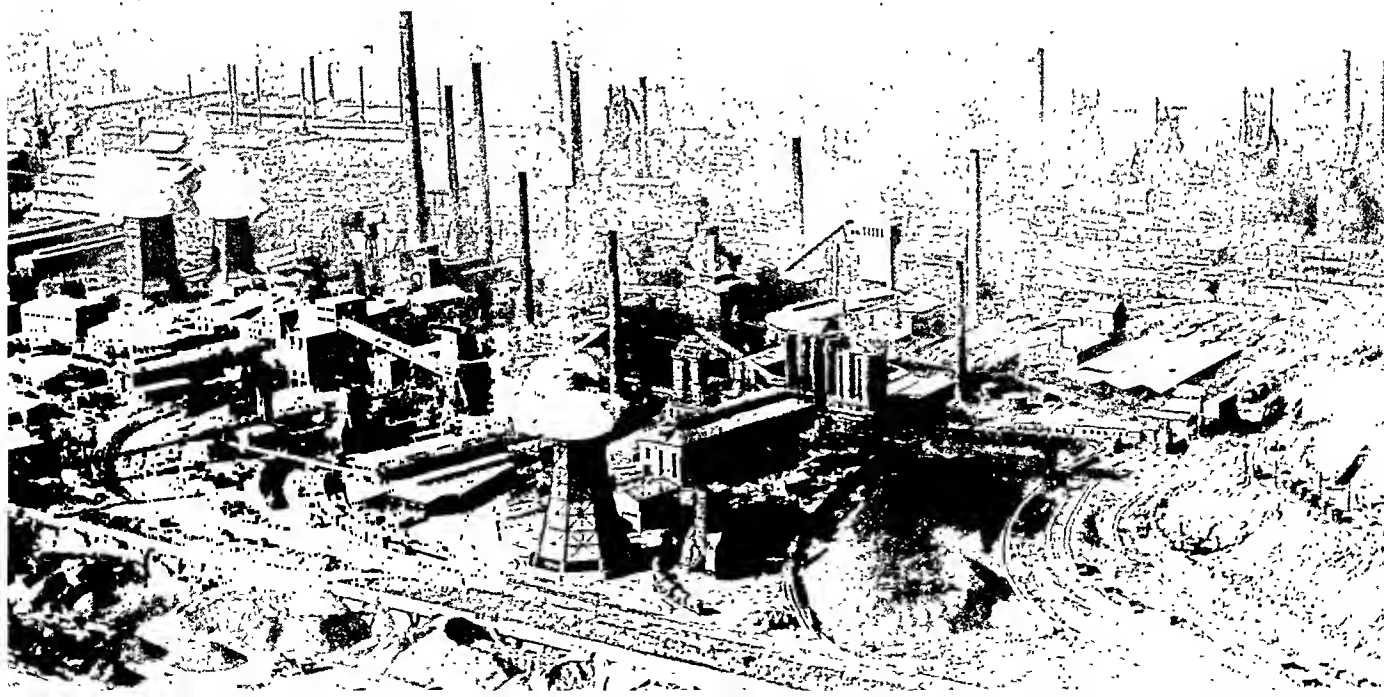
MINERAL RESOURCES

Europe is comparatively well endowed with coal and iron ore but has comparatively few resources in nonferrous metals and in petroleum. The total

European (excluding Russian) production of these commodities is shown in Table 4-4.

Other metals are produced in only small amounts. Europe has, however, a large number of smelting works and refineries for nonferrous

This confused industrial scene is of the Westfalenhütte, on the northern margin of Dortmund, the Ruhr industrial region. It typifies the development of the northwest European industrial belt. (*Presse- und Informationsamt, West Germany*)



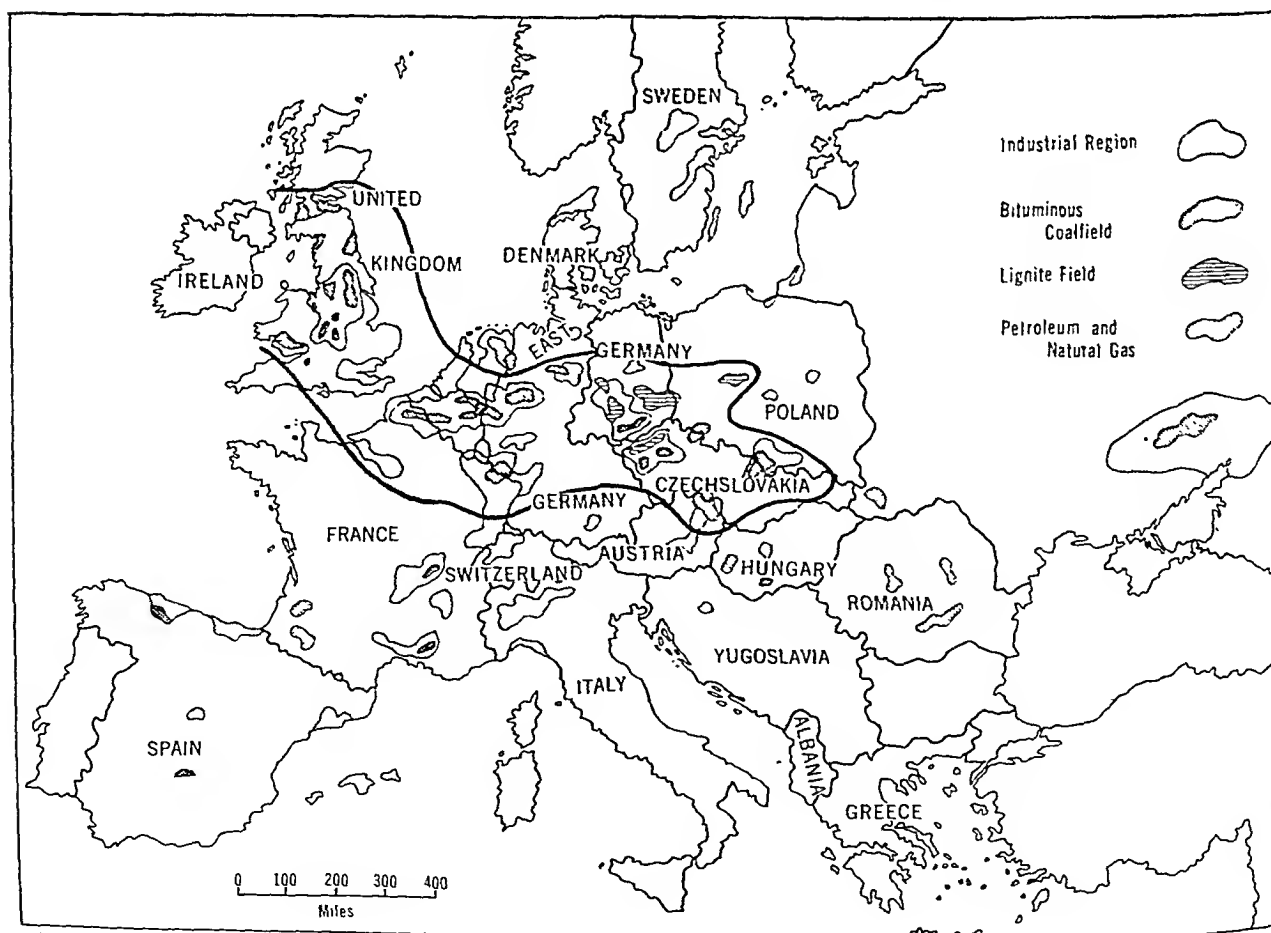
ores and metals, which are imported from other continents. The output of some of these smelters is far greater than is necessary to satisfy Europe's needs. The maintenance of these smelting and refining works clearly depends, however, on the import of ores and metal concentrates.

In addition to many iron-ore deposits of small or medium size, Europe has two reserves of exceptional size and importance. These are the high-grade ores of Swedish Lapland and the low-grade minette ores of Lorraine. Both ores are phosphoric and require that steel made from them be prepared by a special basic process. Both are, furthermore, of great importance to the heavy industries of northwestern Europe. The United Kingdom also has large reserves of low-grade ore, with much smaller reserves of ore of good quality. In addition

to the Lorraine deposits, France has a number of small deposits of good ore. Spain has numerous deposits, and those of the Basque Provinces were once of considerable European importance. Germany has many small deposits, most of poor quality, and Czechoslovakia, Austria, Italy, and the Balkan countries also have small but locally significant reserves.

The nonferrous metals are no longer of great importance in Europe. At one time various parts of Europe were the leading producers of the ores of such metals as copper, lead, zinc, and tin, as well as of a large number of other minerals. Today the tin-mining industry has almost disappeared from Cornwall; only ruins and spoil heaps show where zinc was once mined in the Ardennes, and most of the ancient mining centers

FIGURE 4-3. The industrialized belt of northwest Europe.



**TABLE 4-5. Iron Ore Production,
1963 (Metal Content, in
Thousands of Metric Tons)**

Common Market countries:		
Belgium	29	
France	18,812	
Germany, West	3,124	
Italy	509	
Luxembourg	1,921	
Total		24,395
Other non-Communist countries:		
Austria	1,180	
Finland	232	
Norway	1,250	
Portugal	135	
Spain	2,700	
Sweden	14,182	
Turkey	444	
United Kingdom	4,091	
Total		24,214
COMECON* countries:		
Bulgaria	254	
Czechoslovakia	953	
Germany, East	498	
Hungary	177	
Poland	720	
Romania	732	
Yugoslavia	812	
Total		4,146

*See below, page 92.

SOURCE: *Statistical Yearbook*, United Nations, 1964.

of the Ore Mountains (*G*: Erz Gebirge) and Harz, where modern mining skills were first developed, are now closed.

Europe produces small quantities of copper, chiefly in Finland, East Germany and Poland; of lead, in Bulgaria, Yugoslavia, Italy, and West Germany; of zinc, in Poland, Italy, Bulgaria, Sweden and Yugoslavia; of mercury in Italy and Spain; of chrome, in Greece and Yugoslavia; of wolfram, the ore of tungsten, in Spain and Portugal. Perhaps the most important of the nonferrous metals is aluminum, whose ore, bauxite, is quar-

ried rather than mined in large quantities in France,¹ Hungary, and Yugoslavia.

Coal is more widely distributed. There are few countries which have none. The only large fields, however, lie along the northern edge of the central hilly belt—in England, France, Belgium, Germany, and Poland. Most of it is "soft" coal. "Hard" coal is mined only in the south Wales coal-field in the United Kingdom, and in the Ruhr area

¹ The ore obtains its name from the French town of Les Baux, in Provence, where it was first exploited commercially.

**TABLE 4-6. Coal Production, 1963
(In Thousands of Metric Tons)**

Common Market countries:		
Belgium	21,418	
France	47,754	
Germany, West	142,786	
Italy	585	
Netherlands	11,509	
Total		224,052
Other non-Communist countries:		
Austria	104	
Ireland	208	
Norway	393	
Portugal	416	
Spain	12,996	
Sweden	99	
Turkey	4,153	
United Kingdom	198,936	
Total		217,305
Communist countries:		
Bulgaria	658	
Czechoslovakia	28,180	
Germany, East	2,483	
Hungary	3,710	
Poland	113,150	
Romania	5,655	
Yugoslavia	1,286	
Total		155,122

SOURCE: *Statistical Yearbook*, United Nations, 1964.

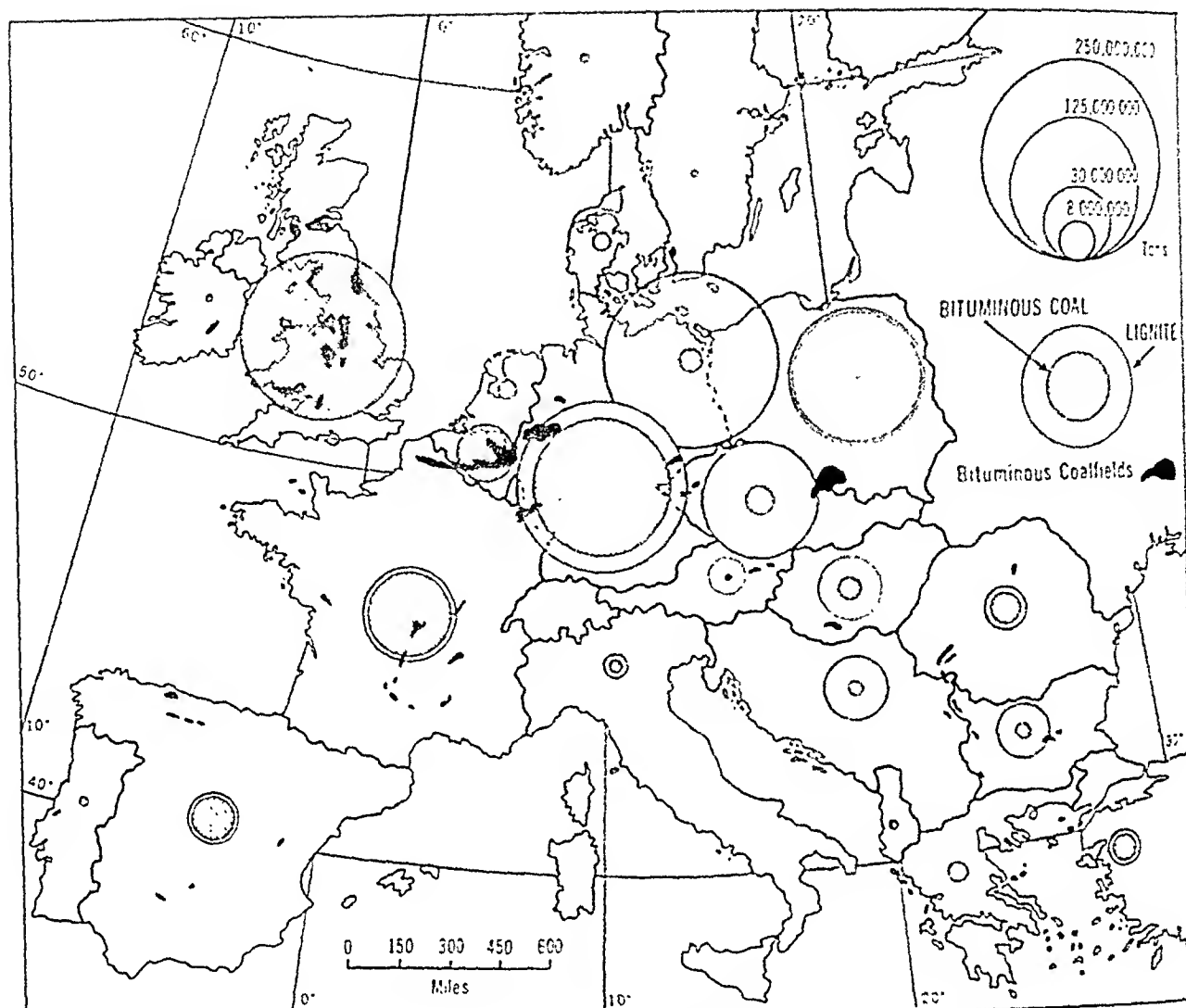


FIGURE 4-4. Production of coal and lignite in Europe.

of Germany. The United Kingdom and Germany both have large reserves of coal suitable for making metallurgical coke for the blast furnace, but France, Belgium, and Luxembourg are wholly or in part dependent on Germany for coking coal.

In addition, Austria, Eire, Norway, Sweden, and Romania each produced less than half a million tons. The figures in the accompanying table refer to "black" coal. Europe is also a large producer of lignite, or brown coal, obtained chiefly from large, open workings in Germany and Poland. Lignite is of low heating quality, and most of it is used locally to generate power or is compressed into briquettes for more economic handling. Other countries producing lignite, though in

very restricted quantities, are Austria, Romania, Denmark, France, Spain, Turkey, Greece, Italy, Albania, the Netherlands, and Portugal. In Ireland peat is an important fuel.

Petroleum. Europe produces only about 2 per cent of the world's petroleum, and in 1959 consumed about 17 per cent of it,¹ while the Soviet Union and eastern Europe together produced 15 per cent and consumed 13 per cent. The Middle East, the only really large source of petroleum in the Old

¹ Figures from *Oil: Recent Developments in the OEEC Area*, OEEC, Paris, pp. 23-24, 1961.

World, produced 22 per cent of the total and used only 3 per cent. Within Europe only Romania can be considered an important producer, but

even here, despite the fact that current production is the largest in the country's history, output is only 1.2 per cent of the world total. Romania is

Cool remains the chief source of industrial power in Europe, whether obtained from (1) bituminous coal, as at the Wolsum mine in the Ruhr (*Presse- und Informationsamt*) or (2) lignite, as at the Fortuno Grube, near Cologne (*Presse- und Informationsamt*) and (3) burned at large generating stations, such as the Goldenberg Kraftwerke, at Knopsock, near Cologne to generate electric power (*Bildnachweis zur deutschen Landeskunde*). Nevertheless, hydroelectric power, is made possible in some cases by the construction of dams, such as the Augst dam (4) on the Rhine, Switzerland (*Aerofilms*).

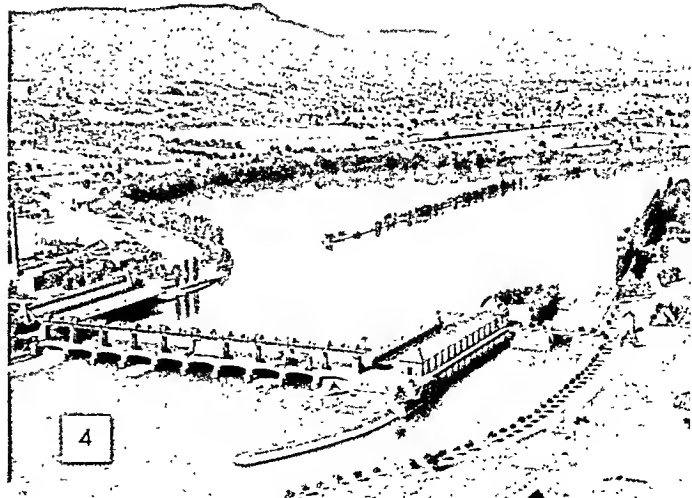
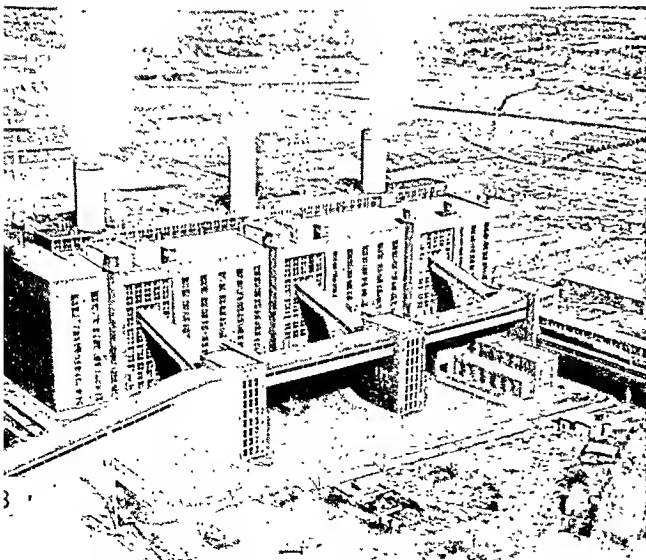
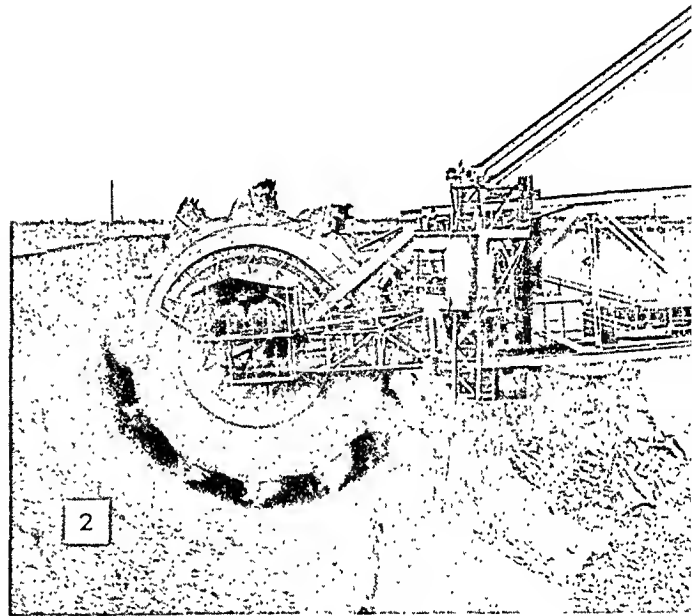
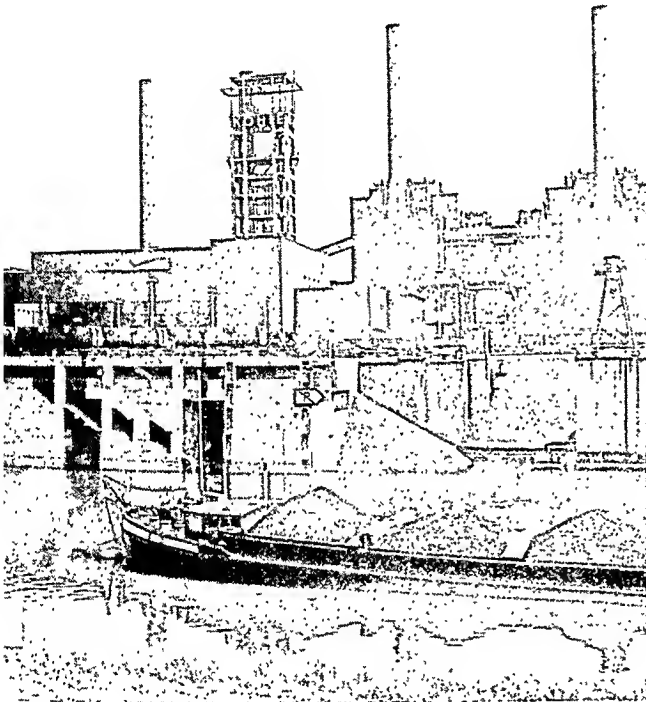


TABLE 4-7. Lignite Production, 1963
(In Thousands of Metric Tons)

Common Market countries:		
France	2,475	
Germany, West	106,658	
Italy	1,366	
Total		110,499
Other non-Communist countries:		
Austria	6,053	
Denmark	1,999	
Greece	3,480	
Portugal	142	
Spain	2,581	
Total		14,255
Communist countries:		
Albania	300	
Bulgaria	20,275	
Czechoslovakia	73,303	
Germany, East	254,219	
Hungary	26,769	
Poland	15,344	
Romania	4,612	
Yugoslavia	26,136	
Total		420,958

SOURCE: *Statistical Yearbook*, United Nations, 1964.

followed by West Germany, where production has increased rapidly in recent years. Those European countries, apart from the U.S.S.R., which in 1962 produced significant quantities are given in Table 4-8.

Europe is dependent to the extent of over 75 per cent of its needs upon imports. Eastern Europe now derives most of its imported petroleum from the Soviet Union; the rest of Europe obtains about 70 per cent of its total petroleum products from the Middle East, 20 per cent from the New World, and the remainder from the U.S.S.R. and elsewhere. Western Europe is obliged to import its petroleum by sea. Tankers bring it to the ports, near which are storage tanks and refineries. There is a large movement of petroleum

on the canals and rivers, particularly the Rhine, but the spreading network of pipelines is now distributing an increasing proportion of Europe's oil from the ports to inland refineries. Already pipelines have been laid from the North Sea ports of Rotterdam and Wilhelmshaven to the industrial Rhineland; from Lavera (near Marseille) across eastern France to Karlsruhe in West Germany, and from Genoa into the Swiss Alps. On the other side of the Iron Curtain, the "Friendship" pipeline extends west from the Soviet areas of oil production, across Poland and into East Germany, while branch pipelines reach south into Czechoslovakia and Hungary. At the same time an oil pipeline has been built from the Soviet Union to a refinery, now in course of construction at Plock, on the Vistula below Warsaw, and on to East Germany. A branch from it has been constructed to Czechoslovakia.

TABLE 4-8. Petroleum Production, 1963
(In Thousands of Metric Tons)

Common Market countries:		
France	2,522	
Germany, West	7,383	
Italy	1,835	
Netherlands	2,215	
Total		13,955
Other non-Communist countries:		
Austria	2,620	
United Kingdom	125	
Total		2,745
Communist countries:		
Albania	785	
Bulgaria	173	
Czechoslovakia	180	
Hungary	1,756	
Poland	212	
Romania	12,233	
Yugoslavia	1,611	
Total		16,250

SOURCE: *Statistical Yearbook*, United Nations, 1964.

INDUSTRIAL POWER

European industry is still based primarily on power derived either directly or indirectly from coal. The use of petroleum and oil has tended to be restricted by the political problems of access to sources of supply. Nevertheless, its greater convenience and efficiency has made it the fastest-growing form of industrial power. In terms of calorie equivalent, the petroleum consumption of the OEEC countries (see page 80) is only a little less than half that of coal.

Hydroelectric power makes up very much less than a tenth of all power consumed within the same area. There are facilities for the further development of hydroelectric power, but installations are expensive and not likely to be undertaken on a large scale in many countries until the price of coal becomes higher than it is at present. Much electric power is generated by burning coal. In Germany much of this is from lignite-fired plants. Countries in which hydroelectric power has been most developed, such as Norway, Sweden, Switzerland, Austria, and Italy, are those in which coal deposits are very small.

Economically considered, nuclear power remains comparatively unimportant, but a number of nuclear-powered generators has been built, especially in the United Kingdom and France, and others are under construction or projected in West Germany, the Low Countries, and Italy.

MANUFACTURING INDUSTRY

All Europe carries on manufacturing industries, but in some parts of the continent it is on a small-factory basis and employs only a small proportion of the working population. The greater part of the factory industry of Europe is concentrated in the United Kingdom and in a narrow belt of country which stretches from the coast of northern France through Belgium and the Netherlands to northwestern Germany. Within Germany, it extends over Westphalia and Saxony and spreads into Polish Silesia and Czechoslovakia. Away from this axial belt are the industrial areas of the upper Rhineland and Switzerland, of northern Italy, of

Catalonia, of central Sweden, and of the Soviet Union. Eastern Europe was formerly relatively unindustrialized. Since about 1950, however, plans for rapid industrialization have been introduced, and some east European countries, notably Poland, Czechoslovakia, Hungary, and Yugoslavia, are at present developing or expanding their manufacturing industries at a rapid pace.

The primary reason for the location of this belt of industry is the occurrence of coal along the northern edge of the hills of central Europe. The factory industries of Italy and Spain have not been located with reference to fuel reserves, but in recent years they have drawn heavily on the hydroelectric power from the nearby mountains.

This industrial area is the most densely populated part of Europe. It is an area where a relatively small amount of the land is under crops. This is due chiefly to the fact that factory industry affords an alternative employment and permits the purchase of imported foodstuffs.

The metallurgical industries of France, Italy, Belgium, the Netherlands, Luxembourg, and Germany have come in recent years to form a group of closely related units. The German coalfield of the Ruhr supplies coke to its neighbors; France and Luxembourg send iron ore to Belgium and Germany. These countries form a single industrial region. The student, in studying each of these countries, must always be aware of their interdependence, which is emphasized by the creation and the highly successful operation of the European Coal and Steel Community (see page 89), which in 1952 established, among France, Belgium, Luxembourg, the Netherlands, and West Germany, and Italy, a common market in the raw materials and partly finished products of the iron and steel industries.

While most European countries have an iron and steel industry of some kind, production is dominated by Germany, France, and the United Kingdom, the only countries which have the raw materials—ore and metallurgical coke—in quantity. The steel production of West Germany, previously the most important producing area in Europe, was curtailed drastically as a result of

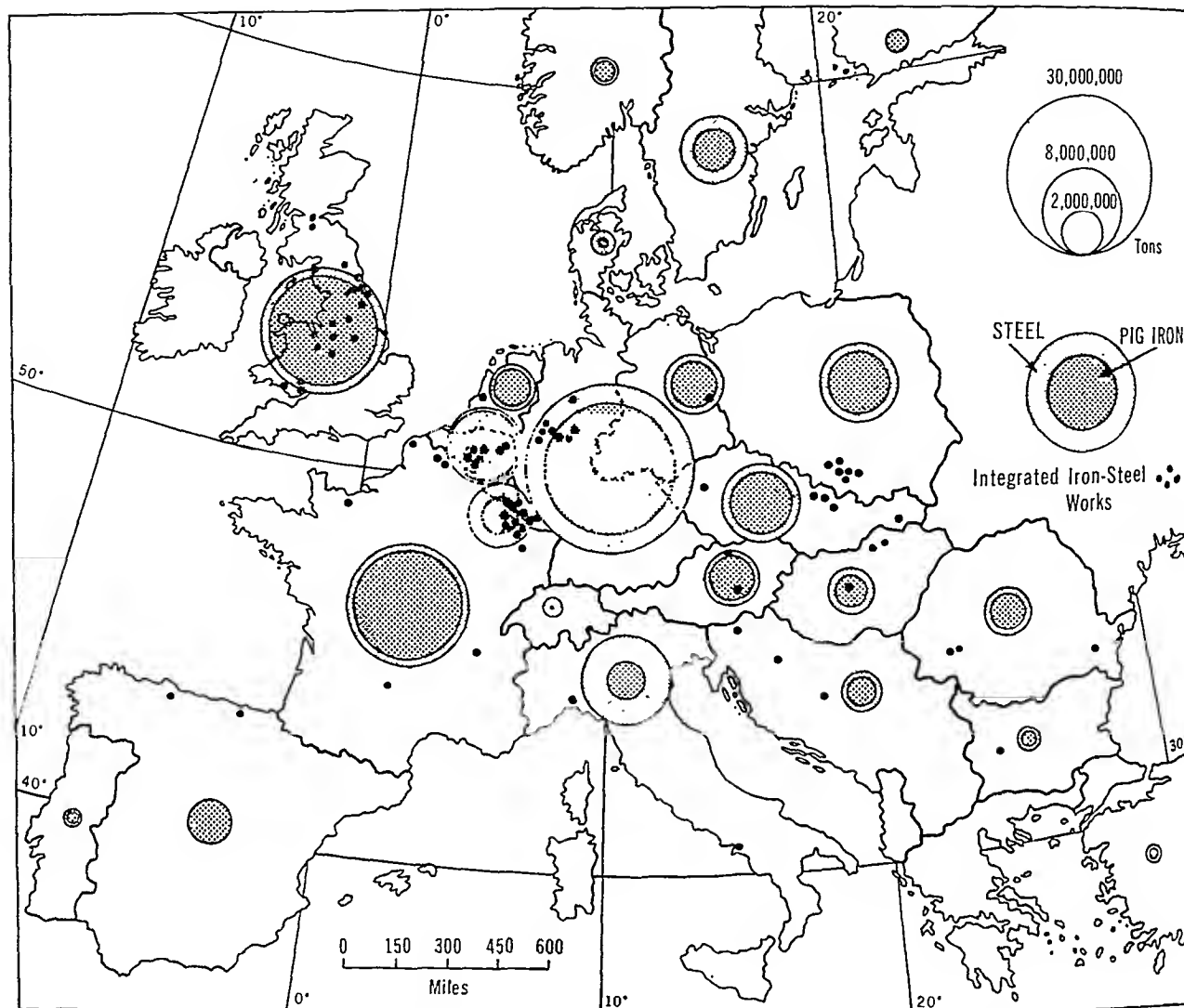


FIGURE 4-5. Production of iron and steel in Europe. Note that steel production normally exceeds that of pig iron, owing to the extensive use of scrap metal in steel furnaces.

Allied policy after 1945, but has since been expanded to become again the largest in Europe.

The metal-using industries are more widely distributed and also far more varied in the types of goods which they produce. Some countries, in which the smelting and steelmaking industries are either absent or but feebly developed, have important engineering and mechanical construction industries, among them Switzerland and Denmark. In all countries, the crude metal, produced at only a few places, is distributed to widely scattered fabricating centers. In general these industries are

consumer-oriented, and are carried on more economically close to the markets which they supply than near the sources of the materials which they use. These branches of industry include automobile manufacture; shipbuilding, which must necessarily be done on the coast; and the construction of machines of every variety, ranging from precision instruments which require relatively little metal, to elaborate forgings and castings. The ratio of labor to materials is a factor in the location of such industries. In general, it may be said that those manufactures in which the demands for

materials are small and for labor high are likely to be carried on far from the iron and steel manufacturing centers, and vice versa.

The textile industries are more widely distributed than the metallurgical. All European countries are textile producers, but only the United Kingdom, France, Belgium, Germany, and Italy are exporters on a large scale. Most other countries import more than they export.

TABLE 4-9. Production of Crude Steel, 1962
(In Thousands of Metric Tons)

Common Market countries:		
Belgium	7,528	
France	17,557	
Germany, West	31,597	
Italy	10,157	
Luxembourg	4,032	
Netherlands	2,342	
Total		73,213
Other non-Communist countries:		
Austria	2,947	
Denmark	359	
Finland	308	
Norway	543	
Spain	2,430	
Sweden	3,900	
Switzerland	322	
Turkey	331	
United Kingdom	22,881	
Total		34,021
Communist Countries:		
Bulgaria	461	
Czechoslovakia	7,598	
Germany, East	3,626	
Hungary	2,374	
Poland	8,004	
Romania	2,704	
Yugoslavia	1,588	
Total		26,355

SOURCE: *Statistical Yearbook*, United Nations, 1963.

TABLE 4-10. Textile Material Production, 1962
(In Thousands of Metric Tons)

Country	Cotton yarn	Woolen yarn
Common Market countries:		
Belgium	94.9	58.6
France	296.5	145.5
Germany, West	382.6	114.1
Italy	209.8	203.4
Netherlands	72.5	24.5
Other non-Communist countries:		
Austria	27.0	13.6
Denmark	8.8	4.6
Finland	16.2	6.3
Greece	27.0	9.7
Irish Republic	5.6	7.0
Norway	4.8	8.0
Portugal	63.7	11.7
Spain	104.6	16.0
Sweden	23.1	12.4
Switzerland	37.5	1.1
Turkey	51.8	10.0
United Kingdom	236.8	241.1
Communist countries:		
Bulgaria	52.7	16.3
Czechoslovakia	109.9	42.0
Germany, East	82.9	34.8
Hungary	59.9	16.5
Poland	163.4	62.4
Romania	69.7	20.5
Yugoslavia	68.6	19.3

SOURCE: *Statistical Yearbook*, United Nations, 1963.

CHEMICAL INDUSTRIES

It is difficult to generalize about a group of industries as varied as the chemical. Their products range from pharmaceutical goods, made in small quantities and sometimes in small establishments, to mass-produced alkalis and acids, fertilizers and rubber. Some products are linked closely to the coal-mining, coking, and petroleum-refining industries; others, like the basic chemicals made in East Germany, are based upon local supplies of

potash and other salts. The immense range of chemical products makes it very difficult to calculate their size and the value of their products for each country. West Germany, the United Kingdom, and France are clearly the dominant producers, but there are few European countries that do not manufacture some of the basic chemicals.

It is difficult to measure the size and importance of manufacturing industries in the countries of Europe. Table 4-12 shows the size of the population employed in manufacturing, and its proportion to the total population.

POPULATION AND LIVING STANDARDS

A picture thus emerges of a Europe divisible into four economic regions. The boundaries of these regions are indefinite and are not all related to national frontiers.

1. An industrial core stretching from Great Britain to upper Silesia, within which are the densest population and the highest average income and living standards.

2. A northwestern area of scientific agriculture and, aside from small and more backward loca

TABLE 4-11. Chemical Manufacture, 1962

Country	Common acids and alkalis				Fertilizers	
	Sulphuric acid	Hydrochloric acid	Nitric acid	Caustic soda	Super phosphates	Nitrogenous fertilizer
Austria	160	—	—	—	248	173.8
Belgium	1,232	—	—	—	284	234.1
Bulgaria	247	0.3	0.2	18.6	—	87.7
Czechoslovakia	643	91	—	142.0	706	153.9
Denmark	12	—	—	—	701*	—
Finland	238	1.3	3.5	79.0	342	53.7
France	2,214	111.5	1,737.0	213.0	1,475	745.9
Germany, East	861	80.3	—	355.0	618	338.2
Germany, West	3,101	283.4	—	901.0	289	1,198.5
Greece	97	3.9	0.2	1.9	180	—
Hungary	224	7.6	174.9	24.2	424	72.3
Irish Republic	129*	—	—	—	250	—
Italy	2,561	79.1	865.1	493.0	1,398	722.4
Netherlands	818	—	—	—	1,039	443.6
Norway	85	31.1*	21.3*	56.9*	61*	287.9
Poland	852	28.9	698.0	196.0	996	307.8
Portugal	341	1.7	58.6	—	311	60.6
Romania	326	8.9	—	156.1	541	—
Spain	1,438	26.6	94.5	143.3	1,696	153
Sweden	400	36.1*	117.9	—	498	52.5
Switzerland	122	—	—	—	34	23.
Turkey	20	—	—	1.4	60	—
United Kingdom	2,775	—	—	—	620	465.6
Yugoslavia	281	3.1	41.7	53.7	521	20.5
United States	17,555	959.4	3,302.7	4,955.0	10,771	3,427.

* Figures for 1961.

SOURCE: *Statistical Yearbook*, United Nations, 1963.

TABLE 4-12

	Persons employed in manufacturing (in thousands)	Percentage of total population	Percentage of Gross National Product from:		
			Mining	Manufacturing	Mining and manufacturing
Common Market countries:					
Belgium (1960)	1,173.2	13	4	35	—
France (1953)	4,919.0	12	2	37	—
Germany, West (1960)	7,159.7	13	—	—	52
Italy (1960)	5,325.0	11	1	32	—
Luxembourg (1959)	34.5	10	3	41	—
Netherlands (1960)	1,294.0	11	—	—	42
Other non-Communist countries:					
Austria (1953)	847.4	12	—	—	38
Denmark (1960)	372.5	8	1	30	—
Finland (1960)	373.9	8	—	—	33
Greece (1958)	211.7	3	—	—	—
Ireland (1959)	147.2	5	—	—	30
Norway (1959)	287.9	8	1	27	—
Portugal (1960)	132.3	1	1	37	—
Spain (1959)	1,489.3	5	2	21	—
Sweden (1959)	851.6	11	—	—	—
Switzerland (1955)	889.8	18	—	—	—
United Kingdom (1958)	7,634.1	15	2	37	—
Turkey	1,338.0	5	2	14	—
Communist countries:					
Czechoslovakia	2,086.0	16	—	—	69
Germany, East (1958)	2,603.2	16	—	—	69
Hungary (1960)	927.2	10	—	—	69
Poland (1960)	2,509.0	8	—	—	52
Romania	—	—	—	—	44
Yugoslavia (1959)	328.8	2	—	—	44

SOURCES: *Statistical Yearbook*, United Nations, 1963; *Yearbook of National Accounts Statistics*, United Nations, 1963.

areas, relatively high incomes and good living standards.

3. A northern belt of harsh climate and sparse population, engaged in part in specialized occupations, such as mining and lumbering, which, owing to their high degree of specialization, often support high standards of living.

4. A large southern and eastern area of dense rural population, backward agricultural methods, and low living standards, now in process of transformation by national plans for establishing industry and modernizing agriculture.

A generation ago rural overpopulation and economic backwardness were serious problems in

TABLE 4-13. Population of Europe,
1962 Estimate (In Thousands)

Country	Population	Density per sq. km
Norden:		
Norway	3,639	11
Sweden	7,562	17
Finland	4,505	13
Denmark	4,654	108
Northwest Europe:		
United Kingdom	53,441	219
Ireland	2,824	40
France	46,998	86
Belgium	9,221	302
Luxembourg	322	124
Netherlands	11,797	351
Central Europe:		
West Germany	54,767	220
East Germany	16,044	147
Berlin	3,238	3,663
Poland	30,324	97
Czechoslovakia	13,856	108
Switzerland	5,660	137
Austria	7,128	85
Southeastern Europe:		
Hungary	10,061	108
Romania	18,681	79
Yugoslavia	18,837	74
Albania	1,711	60
Bulgaria	8,013	72
Southern Europe:		
Spain	30,817	61
Portugal	8,971	98
Italy	50,170	167
Greece	8,451	64
Turkey	29,059	37

SOURCE: *Statistical Yearbook*, United Nations, 1964.

this last region of Europe. They still exist, and locally they still are serious, notably in parts of Spain, Greece and the Balkans, but the Italian plans for the Mezzogiorno, or "South," and the national plans in the Communist countries are slowly alleviating the most extreme problems.

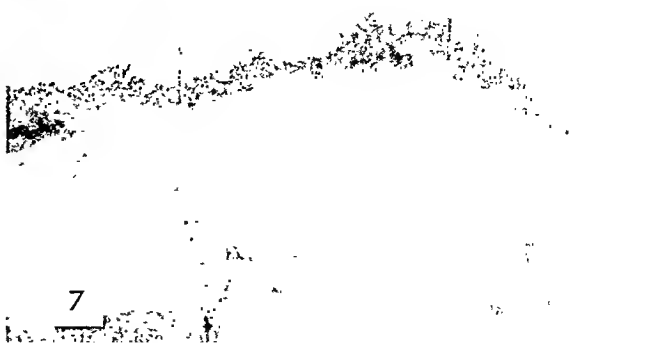
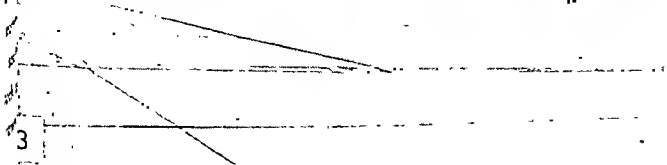
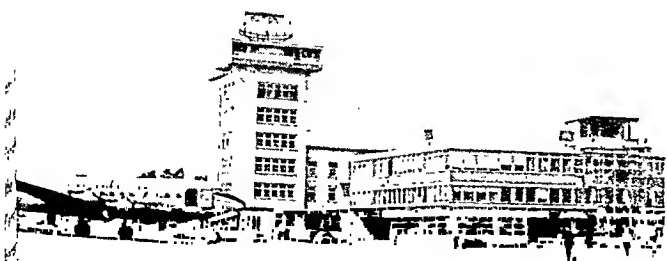
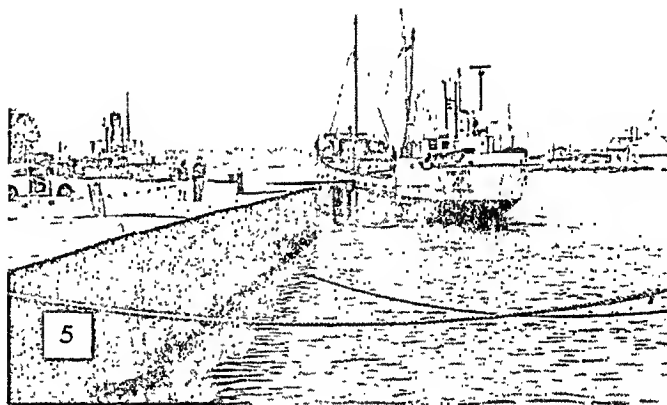
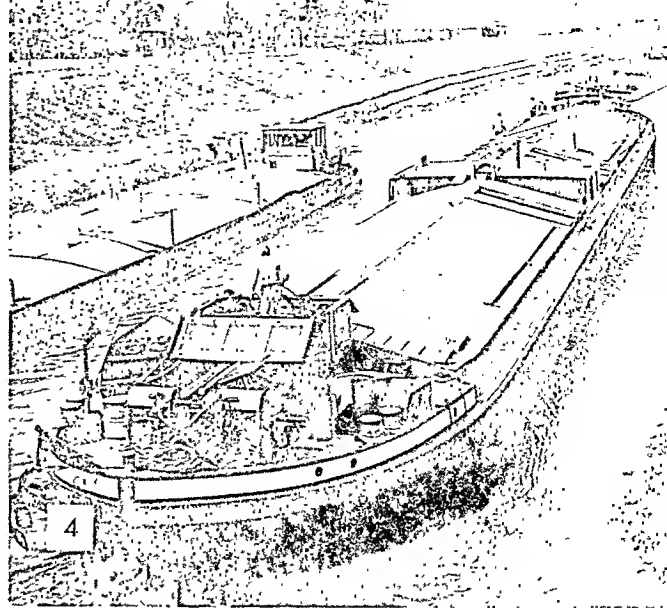
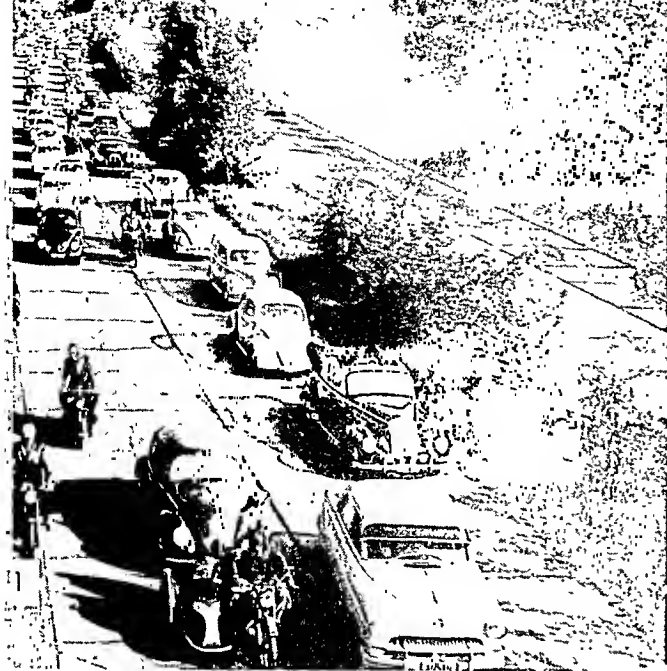
The population of Europe, west of the Soviet Union, was in 1962 estimated to be 434,000,000. Tables 4-12 and 4-13 give the estimated population of each country, together with the proportion engaged in manufacturing industry and in agriculture. The countries are grouped according to the major divisions of the continent used in this book.

TRANSPORTATION

The development of manufacturing industries and the maintenance of a high standard of living would be impossible without a well-developed system of transportation. Over all the countries of northwest Europe there is a very close rail network, and the train service in all countries is both fast and frequent. This net is less developed in Spain, southern Italy, the east European and Balkan countries, and most of Scandinavia, areas in which the population is much sparser and industries less developed.

All significant European railroads, except the Russian, are on the standard gauge of 4 feet 8½ inches. This enables through trains to be run across national frontiers. There are a number of transcontinental express trains, though these are neither so numerous nor so important as they were before the Second World War. The division of Europe by the Iron Curtain also limits the operation of long-distance trains. There are express

The photographs on page 75 show the range and variety of transportation: (1) an Autobahn in West Germany (German Information Center); (2) the intensively used railroad system—here the Hauptbahnhof at Frankfurt-on-Main (Presse- und Informationsdienst); (3) the airport at Frankfurt-on-Main (Presse- und Informationsdienst); (4) the Mittel-land Canal, near Hanover, in north Germany (Presse- und Informationsdienst); (5) the coastal trade, handled mainly by small ships, is especially important because of the great length of the coastline, the frequency of small harbors, and the number of navigable rivers; here are small coasting craft in the harbor of Bayonne, southwest France (N. J. G. Pounds). More primitive means of transport are also used, such as the ox-drawn load of hay (6) from near Zagreb, Yugoslavia, and (7) the horse-drawn farm cart from western Poland (both N. J. G. Pounds).



trains from Paris to Madrid, Rome, and the larger cities of western Germany and also to Copenhagen and Stockholm. It is again possible to travel from Paris to Istanbul by train, though without the smoothness and speed of the prewar Orient Express, and through trains again run to Warsaw and Prague. Train ferries operate between England and the packet stations (see page 167) of northern France and across the larger waterways of the Danish archipelago.

The road system of Europe is similarly developed. It is very close in the more populous and industrialized countries of the northwest, less so in the south, east, and extreme north. In northwest Europe most of the more important roads have a good metalled surface. In some countries, notably Belgium, northern France, and parts of Germany, the road surface is made of small squared blocks of hard stone. Unless carefully maintained, these roads quickly degenerate and become uncomfortable and dangerous. Some of the less-important roads in northwest Europe and even some of the more important in the south and east have only a gravel surface and are sometimes closed in bad weather. There is a tendency to supplement the local road systems with a planned national network of fast motor roads. The German and Austrian *Autobahn*, the English, Belgian, and Dutch expressways, and the Italian *autostrada* are examples.

The rivers of much of Europe have the advantages of regular flow and comparatively little ice in winter, but most are too small for the larger and more economical modes of water transportation. They cannot be navigated by the larger barges. Some rivers, especially the Seine, Rhine, Vistula, and Danube, are large enough in parts of their courses. Others have been made navigable by deepening and straightening them. But few rivers, except the Rhine and the lower Seine, are greatly used for transportation. They are supplemented by a system of canals. Many of these are old and small and, as in England, have largely been abandoned. But the canals of France and the Low Countries and the recently constructed canals of Germany are in regular use and play an

important role in the economy of these countries. The Germans had built a system of canals reaching from the Rhine to the border of Poland. This is no longer used in its entirety owing to the political division of Germany. On the other hand the linkage between West Germany and the rest of western Europe has been strengthened by the canalization of the river Moselle, which links the industrial regions of the Rhineland with those of eastern France.

Europe is particularly well blessed by the number and excellence of its ports and harbors. There are hundreds of small ports along the coasts between the Russian arctic and the Middle East. Some were once important but have silted, like Fréjus and Aigues-Mortes in the south of France. Others, such as Lorient, Brest, Falmouth, and Vigo, have failed to develop as great commercial ports because of the inadequacy of their communications with their hinterlands. A few have grown to be giant ports, equipped with all the modern devices necessary to handle the great ocean liners and cargo vessels. Liverpool and London, Le Havre, Marseille, Genoa, Antwerp, Rotterdam, Amsterdam, Bremen, and Hamburg are some of these. All had the advantages of being near thickly peopled and industrially developed areas and of having good landward communications. These ports handle most of the great foreign trade of Europe. To their number is now being added a vast complex of docks, known as Europort, now under construction at the Rhine mouth, west of Rotterdam. This is to be essentially the port of the European Community.

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In recent years a vast amount of material, both statistics and reports, has been produced by such organizations as The United Nations, the Organization for European Economic Cooperation, the International Labor Office, and the Economic Commission for Europe. In the reports of these bodies the student can find the latest information on the economic recovery and development of Europe. Works on specific countries are listed later in this book in the bibliographies of individual countries. The following list comprises the more important of the general reports.

STATISTICS

- Annual Bulletin of Transport Statistics*, Economic Commission for Europe, Transport Division, Geneva, published annually from 1951.
- Demographic Yearbook*, United Nations, published annually.
- Economic Bulletin for Europe*, Economic Commission for Europe, published quarterly from July, 1949.
- Economic Survey of Europe*, Economic Commission for Europe, published annually.
- Foreign Trade, Statistical Bulletin*, Organization for European Economic Cooperation, Paris, published monthly.
- Monthly Bulletin of Statistics*, United Nations, New York.
- Quarterly Bulletin of Steel Statistics for Europe*, Economic Commission for Europe, published quarterly from December, 1950.
- Statistical Yearbook*, United Nations, published annually.
- Yearbook of Food and Agricultural Statistics*, Vol. I, *Production*; Vol. II, *Trade*, Food and Agriculture Organization of the United Nations, published annually.
- Yearbook of Forest Products Statistics*, Food and Agriculture Organization of the United Nations, published annually.

PERIODICALS

A number of periodical publications, both official and unofficial, contain material that is relevant to the study of economic conditions in Europe. Among these are:

- Economic Review of Food and Agriculture*, Food and Agriculture Organization of the United Nations, published quarterly from January, 1948.

The Economist, London, published weekly.

Foreign Affairs, New York, published quarterly.

Foreign Agriculture, U.S. Department of Agriculture.

Foreign Commerce Weekly, U.S. Department of Commerce.

The Statesman's Yearbook, New York, published annually. (A privately published work of great value.)

The World Today, Royal Institute of International Affairs, London, published monthly.

5

Unity and Division

When, in May, 1945, the Second World War ended in Europe, the continent was in ruins. It had been fought over almost from end to end; only the Spanish peninsula, the British Isles, Sweden, and Switzerland had escaped the invasion, the occupation, and the destruction that go with war. No belligerent had escaped either material damage or a large toll in human lives. Few of the great cities of Europe had escaped destruction; many, like Berlin, Cologne, and Warsaw, had been almost obliterated.

Into this continent had advanced from west and east the armies of the Western Allies and of the Soviet Union. They met along a line which straggled southward from the coast of the Baltic Sea to the border of Czechoslovakia, and from Czechoslovakia through Austria, along the borders of Italy and Yugoslavia to the Adriatic Sea. This division of Europe was thought of as only temporary at first. Within a few years Germany would be united again, Austria evacuated, and warmongers eliminated; and an era of peace would dawn for Europe and the world.

Divided Europe

These hopes were sadly disappointed. In the settlement which has followed each conflict in Europe have lain the seeds of the next. The conflict of the

Second World War has never been settled by any formal treaty, but the territorial divisions which took shape in the closing weeks and days of the struggle have been, as it were, frozen, and from them have grown both the present divided state of Europe and the conditions which could at any time precipitate a new conflict. From the start, disagreements among the Western Allies were overshadowed by their complete failure to reach an agreement with the Russians. The earliest points of disagreement lay in the government of the divided city of Berlin and in the exchange of commodities between countries lying west and east of the line which was soon to divide Europe. In March, 1946, Churchill warned of the "Iron Curtain" that was descending across Europe. By 1947 it was evident that the former Allies no longer had any clear and agreed policy toward Germany, and that the countries lying to the east of Germany would come, one by one, to be controlled by Communist governments and dominated by the military strength of the Soviet Union. The last Communist government to be established was that of Czechoslovakia in 1948. At the same time, however, the integrity and stability of Greece and Turkey were threatened both by subversion within and invasion from without. The United States reacted speedily with its Truman Doctrine of March, 1947, and declared in no uncertain terms that democratic institutions in these countries must be supported with economic and military aid.

In June of the same year George C. Marshall, the Secretary of State, made his momentous offer to the countries of Europe. All Europe might have benefited from American economic and technical aid, but the offer was accepted only west of the Iron Curtain. American help was canalized through the Organization for European Economic Cooperation (OEEC), which was created to distribute it. The OEEC not only was a major factor in the economic recovery and the political stability of those countries which accepted it, but served also as an important training in economic cooperation between them.

Already, however, some of the countries of western Europe had begun to band themselves

together by political ties. First, the Treaty of Dunkirk, signed in March, 1947, by the representatives of Great Britain and France, called for joint action, should it ever be needed, against any revival of German militarism. Even at the time, the treaty was already, in a sense, obsolete, as the gravest danger no longer threatened from Germany. In March, 1948, it was superseded by the Brussels Treaty "for collaboration in economic, social and cultural matters and for collective self-defense." It was not aimed against any specific country, as was the earlier Treaty of Dunkirk, and it was soon afterwards *joined* by Italy and West Germany. The danger from which it sought to protect its signatories, however, was clearly that of the military and ideological expansion of the Soviet Union.

From this point the movement for the economic and political unification of western Europe made rapid progress. In January, 1949, the Council of Europe was formed "to achieve a greater unity between its members for the purpose of safeguarding and realizing the ideals and principles which are their common heritage and facilitating their economic and social progress"—another way of saying that they were dedicated to the defense of Europe against communism.

Teeth were put into the existing alliances by the creation of the North Atlantic Treaty Organization (NATO) in April, 1949. Its members were at first Belgium, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, and the United Kingdom within Europe, and the United States and Canada on the other side of the Atlantic. Subsequently Greece, Turkey, and the German Federal Republic were admitted to membership, and the NATO alliance assumed its present role of foremost political and military alliance of the free world countries.

Thus far the intransigence and the bellicose attitudes of the Soviet Union had served only to unite the normally disunited countries of western Europe and to bring to their side the countries of the North American continent, normally aloof to the affairs of Europe. Such unity as they had achieved was political; it consisted in promises of

mutual help in case of attack and of mutual consultation on pressing problems of whatever nature. This degree of unity was achieved despite conflicts of interest and jealousies, borne of long periods of mutual distrust and suspicion within the west European countries. Without the constant pressure of the Soviet Union on the political systems and the economic welfare of western Europe, this unity could never have been achieved. If it was generous American economic aid that laid the foundations of west European prosperity, it was the hammer blows of the Soviet Union that first began to weld western and southern Europe into some semblance of a political whole. If the chief architect of European prosperity had been George C. Marshall, the credit for its political unity lies squarely on the shoulders of Joseph Stalin.

The year 1950 marked a turning point in the evolution of this sense of unity in Europe. In that year Robert Schuman proposed the creation of a common market in the raw materials and the part-finished products of the iron and steel industries, and suggested that success in this limited field might lead to a profounder economic union of the continent. His proposals had political overtones, and the idea of a federal Europe or United States of Europe soon began to be revived. Before we turn to this new unity, at present being forged in western Europe, and to the complementary developments to the east of the Iron Curtain, we must give some space to the evolution of this concept, Europe.

THE IDEA OF EUROPE

That Europe is a segment of the earth's surface different in its physical aspects from all others has long been recognized. The classical Greeks distinguished between the physical geography, in the broadest sense, of Europe and that of Asia and Africa. And they were only too ready to attribute the obvious contrasts in human development to the superior qualities possessed by Europe. Nevertheless, the Greeks' concept of Europe embraced only a fragment, and that perhaps an atypical fragment, of the continent. Their world was the

Mediterranean environment of classical Greece, and to this physical setting of small mountain-girt plains and craggy islands, of scanty soil and summer drought, their culture was adjusted. Greek civilization, it has been said, confined itself to those lands where the olive, the mainstay of the Greek diet, could grow.

The Roman world was an expansion of the Greek. It embraced the whole Mediterranean littoral. On the south it reached into the Sahara Desert; on the east its frontier forts against the Parthians were built along the inner borders of Syria and Iraq; and on the north Roman rule rested against the Rhine and the Danube for the bigger part of 400 years. It even extended over Spain, Portugal, and England, and Roman authority faded out only against the mountains of Wales and Scotland.

The Roman Empire was something more than a sea state, based upon the Mediterranean Sea and held together by the ships which sailed between its shores. It embraced much of western Europe. The Roman road system reached up to the last frontier post and provided a network of transportation which still in some measure meets the needs of the twentieth century. Not only England, France, Italy, and the Balkan peninsula, but also the southern Netherlands, southwest Germany, and much of Austria, Hungary, and Romania lay within its confines, and received from the hand of the Romans not only the roads and cities which made a civilized life possible, but also the less-tangible blessings of good administration and a respect for the rule of law.

At no time since has it ever been as easy as it was at the time of the Roman Empire to travel and trade freely between northwest Europe and the Levant, between Germany and North Africa. The Roman Empire, weakened by external pressures and internal feuds, was divided into a west and an east for administrative purposes, and yet further subdivided. The Emperor Diocletian in 293 divided his empire by a line which ran from the Danube near the present city of Belgrade, southward through the mountains of Bosnia to the Dalmatian coast near where the city of Dubrovnik



FIGURE 5-1. The extent of the classical civilizations in Europe.

later developed. From here it was thought of as running south across the Mediterranean to the African shore where it is deeply embayed to the south and carries the sea far into the desert (Fig. 5-1). This division, perhaps implicit in the physical geography of Europe in that it traversed thinly populated territory, has been of incalculable importance in the historical development of Europe and shows today in its cultural geography. For a period the two halves of the Roman world focused respectively on their twin capitals, Rome (and its successor Ravenna) and Constantinople, refounded and refortified in A.D. 330 by Diocletian's successor, Constantine the Great.

But in time the western empire succumbed completely and the eastern partially to the attacks of Germanic and barbarian tribes. The eastern emperor lingered on in Constantinople, playing in general a static and defensive role for another thousand years, until in 1453 his capital was taken

by the Turks and his attenuated and impoverished empire brought to an end. The western emperor disappeared earlier, leaving a vacuum which was partially filled in Italy by the rise of the Papacy, and in the rest of Europe by the creation of the Holy Roman Empire.

The Holy Roman Empire. The early Middle Ages were a period of invasion and strife, of reduced trade and diminished population. Many of the Germanic invaders of the Roman Empire were in time assimilated, and some even acquired the Latin dialect of the Roman provincials. Others, advancing within the limits of the empire in greater numbers, retained their Germanic or Slavic language, and with it some at least of their earlier folkways. But they too inherited something from the great empire that had vanished, if it was nothing more than a deep veneration for the rule of law and the profound

peace which characterized it at its best. Recreate the empire of Rome, and the *pax romana* would be restored.

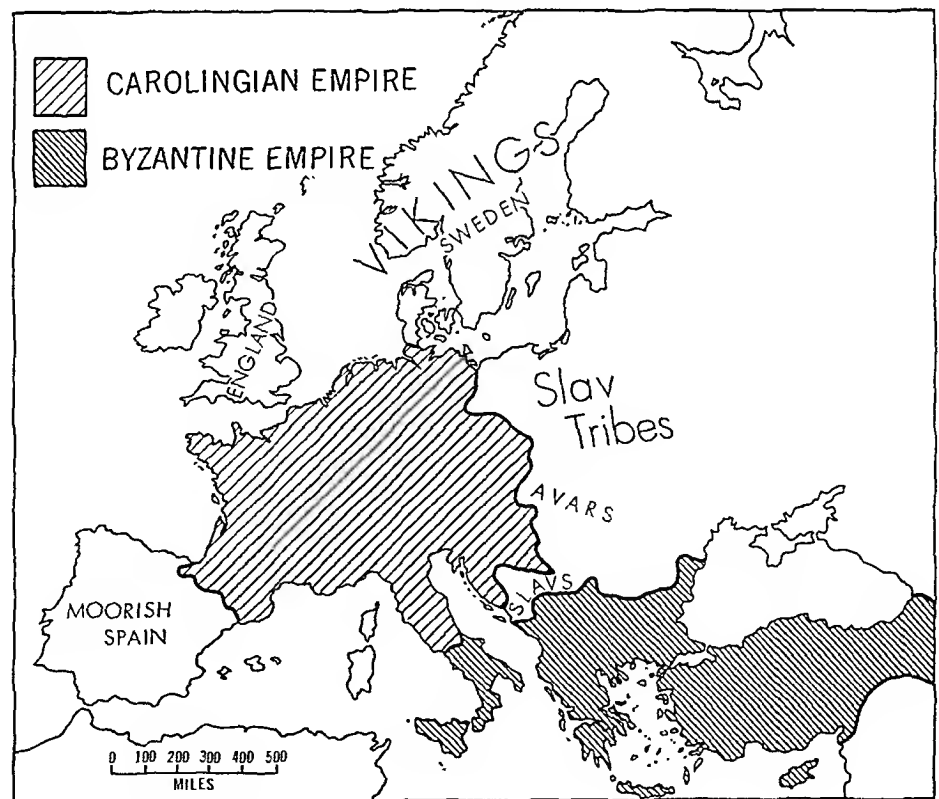
In the meanwhile, however, a fundamental and lasting change had taken place in the cultural geography of Europe. The prophet Mohammed had breathed a new fire into the Arab tribes of the Middle East, and had sent them campaigning around the eastern and southern shores of the Mediterranean. In a period of well under a century, armies made up of Middle Eastern peoples, fanatically inspired with the new religion of Islam, attacked Constantinople on the one wing of their advance and invaded France on the other. Between these two extremes they dominated the Mediterranean Sea, seized its islands, and controlled its commerce. The inland sea, which had formerly served, in a sense, as a bond of union to the Roman Empire, now played a decisive role, separating the European world from the world of Islam. The new Roman Empire, unlike its

predecessor, on which its creators thought they had modeled it, could not possibly be a sea state. Of necessity it was a land state, besieged on almost all sides by non-Christian and non-European peoples: Arabs and Turks, Tatars and Vikings.

Within these fluid limits (Fig. 5-2) developed the Holy Roman Empire, an embodiment of the European sense of unity and of the European peoples' longing for peace and order. They exaggerated the achievement of the Romans, and themselves fell far short of what the Romans had been able to achieve. In part this was due to the essentially geographical fact that the medieval empire was a land empire at a time when movement and transportation by land were incomparably slower and more difficult than by sea. Its failure was in part a failure in communication. But it failed also because it never solved the question of who—pope or emperor—was the true successor to Diocletian and Constantine.

The collapse of the western emperors had left

FIGURE 5-2. The Carolingian and Byzantine empires in the ninth century.



a vacuum in Rome, where the foremost citizen was now its bishop. The latter began to play in some degree the role of the former emperors, and to exact a large part of the homage that had once been their due. "The Papacy," wrote Thomas Hobbs, "is not other than the Ghost of the deceased Roman Empire sitting crowned upon the grave thereof."¹ But it was a vigorous ghost, and when in the year 800 there again appeared an Emperor of Europe, he received his crown at the hands of the Pope. The doctrine gained acceptance that Pope and Emperor were but the twin heads of Christendom, the one wielding the spiritual, the other the temporal sword, uniting in the pursuit of peace within Europe and in the extension of their dominion outside Europe, at the expense of the heretic and the infidel. At no time was the concept of the unity of Europe more clearly held than at this time, when kings and princes owed at least nominal allegiance to the Emperor, and the spiritual welfare of all was the concern of an ecclesiastical hierarchy at whose head stood the Pope himself. That this vision of the "seamless web" of medieval Christendom was no idle dream is evident from the common cultural traits, the freedom of movement and trade, and the administrative structure of medieval Europe. It is no less clear that this web was very torn and tattered, subject to wars and revolts, to heresies and restrictions which its twin heads were powerless to control and, indeed, did much to foment. The medieval empire was one of the noblest ideals of Western man, but the reality fell far short of it. In terms of administrative and economic unity the medieval empire never approached the level of the Roman. Nevertheless, it was at this time that the concept of Europe began to take shape, and Europeans began, for good or ill, to think of themselves as different from other peoples in race and culture as well as in religion. Back of the European movement today stand the medieval strivings for the unity of the subcontinent.

NATIONALISM AND THE NATION-STATE

As the Middle Ages wore on, the illusion of unity within Europe retreated as the interests of the Emperors grew more local and their power more feeble. Kings and princes, restless and self-seeking throughout the Middle Ages, now became more powerful, as they learned, on the one hand, to control their subjects more closely and, on the other, to ignore the pretensions of the Emperor and in some instances to reject those of the Pope. In this revolution, which came earliest in western Europe and spread unevenly and irregularly to the rest, the kings enlisted the support of their respective nations in their struggles for complete independence.

The concept of the nation was a new one. Medieval people had used the term; the students at many of the medieval universities had been grouped according to their "nations." But the term denoted only cultural groups and was devoid of political connotation. Now the English and the French, then the Swiss, the Swedes and the Dutch, the Spaniards and the Portuguese, and lastly the Germans and the Italians were encouraged to think of themselves as distinct and mutually exclusive groups, each welded into a whole by bonds of language and culture, tradition and history, and each desiring and encouraged to translate these groups of related cultural traits into political terms by the creation of states to match them.

The process was spread over many centuries, and it is both irrelevant and impossible in this chapter to trace the rise of nationalism as a political movement. It must suffice to say that by the second half of the nineteenth century the nation-states of western and central Europe had all taken shape, and that the national ferment was already well advanced in eastern Europe and was to give rise to nation-states in the twentieth century wherever it had not done so during the nineteenth.

Nationalism and the nation-state would appear to have destroyed once and for all the medieval dream of unity. There ceased to be any accepted head. Even the office of Emperor, reduced to that of German Emperor, was terminated in 1804. The institutions that had served to unify Europe either

¹ Thomas Hobbs, *The Leviathan*, Book IV, Chap. 47.

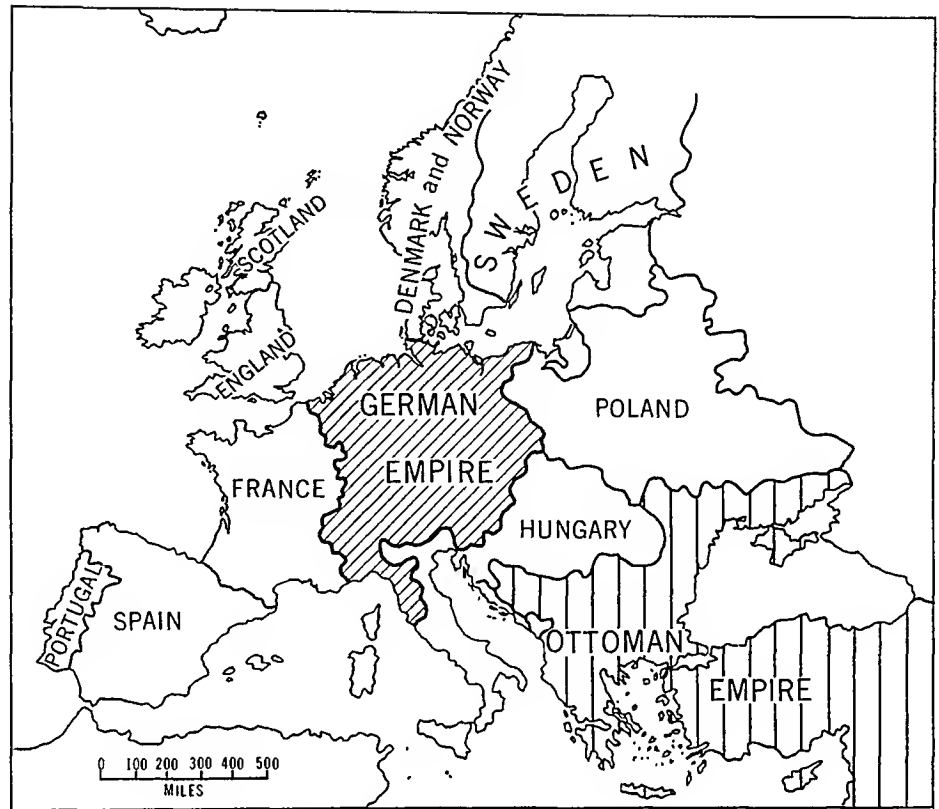


FIGURE 5-3. Europe in the later Middle Ages.

disappeared or lost their effectiveness. Yet the concept of Europe gained rather than lost in strength. Split though Europe was by dynastic and national struggles, its diverse nationalities were constantly portrayed as having more in common with one another than any of them could possibly have with non-European peoples. "The quality of Europe," wrote Samuel Purchas about 1613, "exceeds her quantity; in this the least, in that the best of the world."

It was as if the nation-states of Europe were only playing a game, each trying to defeat its rivals in battle, but careful never to defeat them too severely, always to maintain some kind of balance within this "concert of Europe." The divisions were superficial; the unifying culture which modern Europe had received from medieval went deep, and could generally be called upon to redress the balance whenever the political division of Europe seemed to go too far.

The numerous projects for perpetual peace which were put forward by statesmen, politicians,

and visionaries between the seventeenth and the twentieth centuries all recognized this underlying unity and also the superficial and transitory nature of the political divisions which they sought to remove. Whenever Europe seemed to be threatened by any force which Europeans regarded as non-European, they tended to draw together; they asserted their common cultural traits, which are none the less real for being difficult to define. Europe, said Winston Churchill at Zurich in September, 1946, "is the origin of most of the culture, arts, philosophy and science both of ancient and modern times." He might have added that it is the home of parliamentary democracy, of freedom and toleration, and of modern concepts of human dignity and human rights.

So it was that, in the late forties of the present century, when Europe came again to be threatened from without by the totalitarian and authoritarian dogmas which it had, on the whole, just eradicated from its midst, the older traditions of unity asserted themselves. It was as if, under the

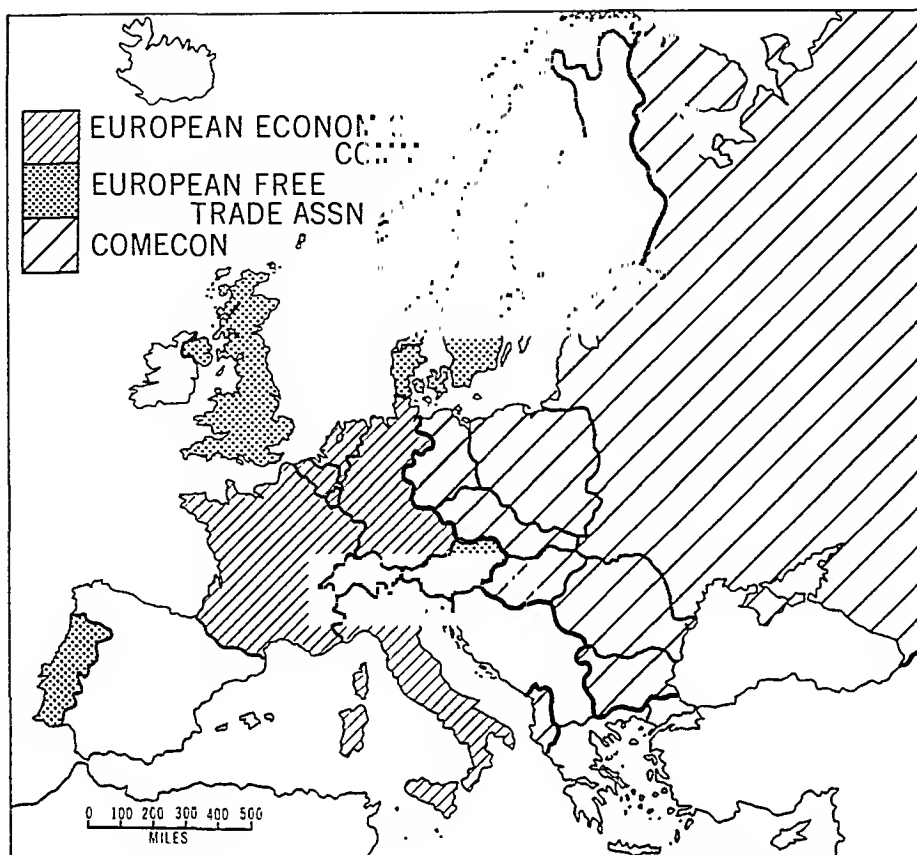


FIGURE 5-4. Europe in the 1960s.

stress of external pressures, the tears and rents in the seamless web of Europe were knit together once again.

EASTERN EUROPE

Yet that part of Europe which is today participating in the European movement is in some respects less extensive than medieval Europe, in some respects more so. It excludes all eastern Germany and Poland as well as Bohemia and its eastern borderlands. At the same time it includes, on the one hand, Scandinavia, which lay on the periphery of medieval Europe, and Greece and Turkey, which lay beyond it.

It was certainly with no thought for the different history of eastern and southeastern Europe that the current division of the continent was established. Nor does it perpetuate, except in a very rough and general way, the dividing line of

former centuries. Nevertheless, there have been, from the closing years of the Roman Empire, at least two Europes, a western and an eastern. To the Romans the line of division followed, in part at least, that line of steep limestone hills and intractable plateaus which stretch from the Alps near the head of the Adriatic Sea, southeastward into Greece, cutting off the middle and lower Danube basin from Italy and the Mediterranean, or at most, allowing only a few precarious lines of communication between them.

This current division was at first only administrative, but it accorded so closely with the geographical facts that it came to be permanent. East of the Dinaric Mountains the land was more easily pervaded by influences from the east. It was, by and large, converted to Christianity by missionaries from Constantinople; it learned to write with Cyrillic characters derived from Greek; its social organization and the traits of its social

geography were dominantly Byzantine until these were overlaid by Turkish.

The frontier between western and eastern Europe fluctuated with time and also differed according to the aspect of political organization and culture studied. Western Christianity extended eastward to Poland and Hungary, farther than even the nominal claims of the Holy Roman Empire. Bohemia, at first proselytized by missionaries from Constantinople, was later reconverted by monks from the west. The Russian Slavs were converted to the Eastern Church, the Poles to the Church of Rome; between the two there always lay a geographically debatable area. In the later Middle Ages this frontier zone ran from the Baltic to the Adriatic. Its similarity to the division of Europe at the hands of the Emperor Diocletian, made for entirely different purposes, was not entirely accidental.

The severest pressures against medieval and early modern Europe came, not from the south, where the forces of Islam seemed to be strongest, but from the east, where the Turks from south of the Black Sea reinforced the danger from the Tatars to the north. The Hungarian State had been created by such invaders; all others were influenced or molded by them. Poland for centuries protected western Europe from the Tatar raids and, in so doing, itself suffered the stultifying effects of playing for so long the military role of guardian of Europe's eastern approaches. In the Balkan peninsula, the enemy was the Turk, and the European protagonist was the Byzantine Empire, seconded by the states of the Serbs, Bulgars, and Hungarians. Yet all succumbed to the Turkish invasions. For periods ranging from a few decades up to 400 years in different areas, the whole of the vast area lying southward from Poland to Greece lay under the control of the Turks. It is difficult to describe the character of their rule. Backward, corrupt, oppressive, it blighted all the lands it touched. Some parts of the Turkish Empire either freed themselves or were liberated by the Austrians, but even the latter failed to introduce any enlightened or progressive rule into the lands they conquered.

Those parts of eastern Europe that escaped

Turkish conquest were mostly absorbed into the empire of Russia. Russian rule lacked that utterly unprogressive quality which marked the Turkish, but it was arbitrary, oppressive, and unwestern. When, in the early years of the twentieth century, the Russian and Turkish empires at last collapsed and evacuated the lands which, in Gladstone's words, "they have desolated and profaned," the young nation-states that emerged in their place were raw, impoverished, and utterly inexperienced. Within a few years all of them, with the exception of Czechoslovakia, which alone of the group had never really experienced these Oriental despotisms, had become military dictatorships.

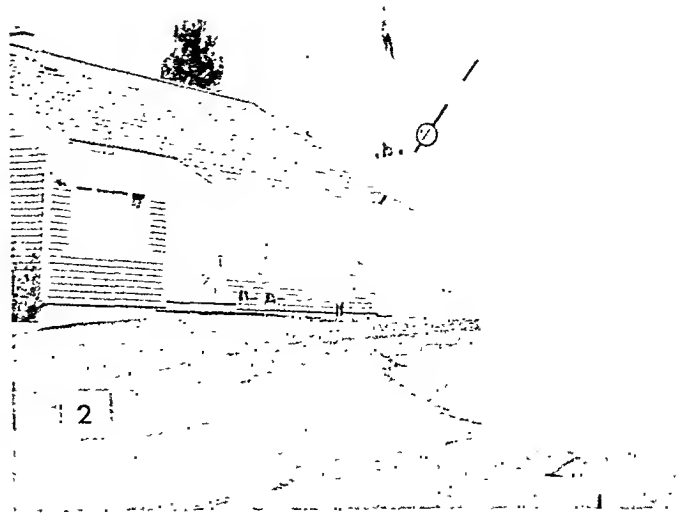
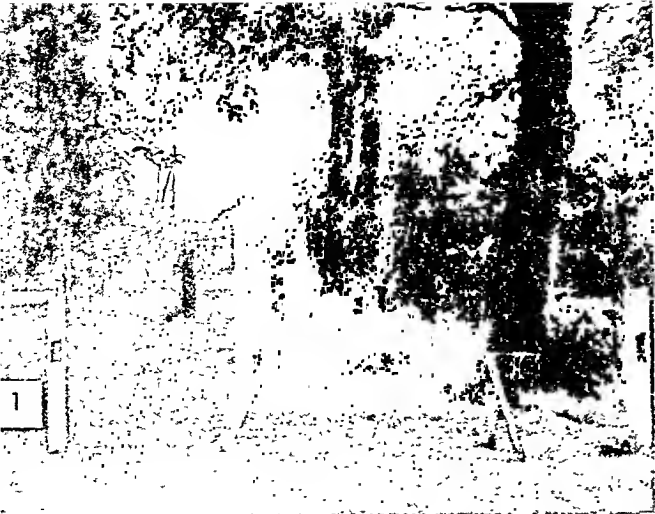
It was these eastern "marchlands" of Europe that, with the addition of the Czech lands of Bohemia and what was formerly central and eastern Germany, fell under Communist or Soviet control. The strength of the present division of Europe derives in part from the fact that, roughly and approximately, it perpetuates earlier patterns of division.

The European Community

In this way was the stage set for another attempt to achieve the unity of Europe. The task was made more difficult by national jealousies and antipathies that had emerged since the end of the Middle Ages, and at the same time it was eased by the improved means of social communication and the greater awareness of the external danger. It was thus possible to marshall all those deep-seated emotions which spring from a growing sense of cultural community. The European movement needed all those, and still it has far to go both in deepening that unity itself and in extending its geographical boundaries.

EUROPEAN COAL AND STEEL COMMUNITY

The European Coal and Steel Community marked a new departure. It created a real, functioning unity in the restricted field of the coal mining and iron and steel industries, and it called for the abandonment by its member states of some limited



Two contrasted boundaries in Europe: (1) the road eastward from Goslar to Wernigerode, on the northern edge of the Harz Mountains, is completely closed where it crosses the "Iron Curtain"; (2) at the Swedish-Norwegian border the notice for ordinary traffic states, "Pass on: no customs control here." (Both N. J. G. Pounds.)

aspects of their sovereignty. It was new for a European state, like France or Germany, to be told by an international body to abandon discriminatory freight rates on its railroads or subsidies to its industries. From the start, the Coal and Steel Community had political overtones. It denoted a trend toward economic unity, and from this toward political.

Of the states originally invited to participate, only six accepted and finally signed and ratified (August, 1952) the treaty which established the Community. They were France, West Germany, the three countries of Benelux, and Italy. Austria, Switzerland, the Scandinavian and Iberian countries, and above all the United Kingdom remained for their own varied and individual reasons outside the Community.

The motives of the six were mixed, in part political—the maintenance of peace in Europe and the presentation of a united front to the Communist bloc which had disclosed only a few months before that it already possessed atomic weapons; and in part economic—the cheapening of the production of iron and steel goods in the face of growing competition from the new and developing countries.

The six members of the Community might have seemed to be natural trading partners. West Germany with her immense reserves of coking coal; France and Luxembourg with their ore; and France with its surplus in steel scrap could each

supply a large part of the needs of the others. Instead there had been a degree of competition between them. Each in some ways discriminated against the industries of its neighbors and favored its own by such artificial stimuli as tariff protection and favorable freight rates. The net effect of this was to raise the prices of iron and steel goods. The object of the Community, realized at the end of its transition period, in 1958, was to remove such restraints, to encourage each industry and each factory to obtain its raw materials from the nearest and cheapest source, and to establish new plants at whatever site within the territory of the six was able to offer the greatest economic advantages. The success of the Community, even in its first few years, can be measured by the sharp increase in trade in coal, ore, iron, and steel between its members; it is reflected also in the cheapening of its products relative to nonmembers of the Community, such as the United States and the United Kingdom.

The more strenuous competition within the Community and the lack of governmental support or protection for the weaker branches of industry threw an insupportable strain on industry. Typical of these were some of the older coal mines of central Belgium (page 224) which had in many instances been worked for over a century and were technically obsolete and, for geological reasons, difficult to mine. Many of these were closed, and their labor force was transferred where pos-

sible to newer mines with better prospects. In the same way, small and old ironworks, like many of those in southern France, which it seemed unwise or impossible to modernize, were closed. Such actions caused local discontent and distress, which the Community did its best to alleviate; but the path of technical progress has always been littered with the remains of industries unable to compete.

The closing of obsolete or poorly located works has been balanced by the construction of new factories on sites which seemed to offer the greatest opportunities from the point of view of the Community as a whole. The great extension of the steel industry in Lorraine and of electric-steel industries in the French and Italian Alps, as well as the building or extension of iron-smelting and steelmaking works at coastal sites, such as Dunkirk in northern France, Bremen in north Germany, and now Ghent in Belgium, are examples of the new and emerging pattern of industry.

In other ways also the Coal and Steel Community began to change the face of Europe. With a supply of German coal constantly available to French consumers, it ceased to be necessary for France to maintain its grip on the coal-mining region of the Saar (*F: Sarre*). In January, 1957, this was restored to German sovereignty. At the same time Germany, which had long resisted the projects to improve navigation on the Moselle because its effect would be to cheapen fuel in France, gave way and undertook to regulate the river and make it available for coal- and ore-carrying barges. This work has now been completed and the canalized Moselle was opened for traffic early in 1964.

EUROPEAN ECONOMIC COMMUNITY

From its inception the Coal and Steel Community was regarded as a prelude to a common market in all commodities, both agricultural and industrial. In this way, it was argued, western Europe might secure the benefits of scale which the United States had used with such advantage.

Discussions began in 1955 about extending the scope of the existing common market in coal, iron,

and steel to all agricultural and manufactured goods. All the countries—18 in number—which had participated in OEEC took part in these discussions. At once three significant areas of difference appeared between the participants.

1. Economic Union or Free Trade Area: The "six" made it clear that they wanted economic union. The member states, they argued, should have a common external tariff, and there should be no restrictions on the flow of capital, labor, or the products of industry between one area of the market and another. Great Britain and several other countries preferred a "free trade area," in which each country would remove all obstacles to trade with other members, but would preserve whatever tariff barriers it chose toward the rest of the world. The advocates of the common market wanted the economic union as a whole to have its own commercial policy, whereas those who supported the free-trade-area idea wanted to preserve a greater freedom of action for individual members.

2. Overseas dependencies: Closely related was the question of how to treat the overseas dependencies and colonies of prospective members. The United Kingdom, for example, had preferential tariff agreements with most members of the Commonwealth. These had been negotiated at the Ottawa Conference as far back as 1931, and many of them had outlived their usefulness. Nevertheless, political and sentimental ties bound the United Kingdom with the territories of her former empire and made her reluctant to sacrifice these small and sometimes only token concessions.

3. Agricultural protection: A third area of difference lay in agricultural policy. Agriculture had long enjoyed varied but generally considerable degrees of protection in European countries. The more highly industrialized the country and the more dependent it was on imported food, the more it seemed to cherish and protect its agriculture. In large measure the purpose was to maximize domestic agricultural production, and so to cut down on imports. But in most of these coun-

tries there was another and less tangible reason. The farmer was regarded as the embodiment of the most cherished virtues—industry, honesty, and integrity—a kind of leaven which could diffuse itself through the mass of the population. There seemed something fundamentally wrong and unhealthy in allowing agriculture and the farming community to decline, as inevitably it would have done in many areas in the face of the unrestricted competition of the efficient, mechanized agriculture of the “new countries.”

Unfortunately, as we shall see later (page 272) protection led to stagnation, and German agriculture, one of the most highly protected in western Europe, was also one of the least efficient. Some participants in the Common Market discussions urged that the Common Market be restricted to industrial raw materials and products, and all required a longer period of adjustment for agriculture than was considered necessary for manufacturing industry. Even the “six,” which found agreement relatively easy to achieve, were obliged to postpone the implementation of a common market in farm goods, and it has still not been fully achieved.

Above these questions hovered the political problem: Was economic union a prelude to some kind of political union, perhaps a federal one? It is certain that the common market idea necessitated the delegation by its members of some part of their sovereignty to a supranational body with the right to interfere in many of the domestic problems of individual countries. Some countries considered that this was going too far. Countries which inclined towards neutrality—Sweden, Switzerland, and Austria—feared that this would jeopardize their position. The United Kingdom, which had for so long cherished its isolation from continental Europe, in Europe but not of it, dreaded the possibility of having its policies in some degree dictated by a supranational European body in which a majority would be made up of countries which it secretly disliked and distrusted.

And so the European Economic Community came to be restricted to those six states which were already associated in the Coal and Steel Community. The Treaty of Rome, by which it

was created, was signed in March, 1957, and the community was born on January 1, 1958. Already it has achieved a very considerable success, expanding greatly the commerce between its member states, maintaining a higher level of economic activity, and bringing about some degree of relocation of industrial activity.

The special position of certain countries, such as Greece and Turkey, was recognized in the discussions which lead to the Rome Treaty. These countries had in recent years devoted much energy to developing manufacturing industries, which were still young and in need of protection. Thus a special status of association with the Economic Community was recognized. Associate members would have the right to sell their products to other members of the community, but would be allowed to continue for a period to protect their infant industries from competition. In 1962 Greece, for example, was admitted to association in the Common Market, and subsequently Turkey and a number of African nations which had previously been colonies of France.

EUROPEAN ATOMIC ENERGY COMMUNITY

The birthday of the Economic Community saw also the beginning of the European Atomic Energy Community, or EURATOM. In some respects this was an outgrowth of the Coal and Steel Community, made necessary by the increasing importance of atomic energy and its sharpening competition with coal fuel. Its members were again the “six”; its declared purpose was to develop in common the use of nuclear energy for peaceful purposes. A common market has been established for nuclear products, and the community has established its own centers for nuclear research in four of its member countries, and has also negotiated agreements to cooperate in similar work with the United Kingdom and the United States.

EUROPEAN FREE TRADE ASSOCIATION

The failure of the 18 European members of OEEC (now OECD) to agree on the structure of a common market led a splinter group of seven

of them to form a free trade area. These countries—the United Kingdom, Austria, Denmark, Norway, Portugal, Sweden, and Switzerland—formed a Free Trade Association, which came into being in 1960. Its scope is limited, as will be apparent from the discussions which accompanied the creation of the European Community. Its members undertook a progressive lowering of the tariff barriers on trade among themselves, without obligation to modify commercial policy toward countries lying outside the group. At the same time it was agreed that agricultural products should be excluded from this free trade arrangement.

Unfortunately, the countries which made up this “outer seven” were, with the exception of the United Kingdom, relatively small and not particularly highly industrialized. Only the United Kingdom carried on a large volume of trade with each of the other members, and some of the latter scarcely traded at all with one another (Fig. 5-4). Nor was it likely that the volume of trade could be greatly increased. It was apparent that the Free Trade Association could never become a trading bloc of the size and significance of the Common Market, and that it must inevitably be dominated and even held together by the United Kingdom.

It became clear, too, that the United Kingdom was losing economically from its exclusion from the European Community. The small market of the Free Trade Association was no alternative to that of the Community, from which many British products were excluded by its uniform tariff wall. So, in July, 1961, the United Kingdom formally requested admission to the European Community, and was at once followed by Denmark and the Republic of Ireland. The United Kingdom sought conditions that would give some economic aid to her fellow members of EFTA and also consolation to the Commonwealth, which was highly critical of her action. On the other hand, it soon became clear that France and perhaps also Germany had no desire to throw open the doors of their community and to welcome all comers. They prefer an organization that is small and exclusive, within which sufficient unanimity of purpose exists to make it an economic and political force the equal of the United States and the Soviet Union. Too many members would dilute its strength too much. Thus, in January, 1963, the negotiations for the admission of the United Kingdom to the European Community were abruptly terminated when the French President, Charles de Gaulle, imposed his veto.

The European road-numbering system is evidence of all-European thinking. E12—European road 12—here runs across the Polish Plain. (N. J. G. Pounds.)



The outward symbols and signs of European union are multiplying west of the Iron Curtain. The ambitious works along the Moselle seek to unite two countries which at one time had been eager only to close their boundaries to one another. West of Rotterdam, Europa port is taking shape—a vast new port of entry to the Common Market. Slowly a network of pipelines is spreading across western Europe from the ports of Marseille and Bremen to refineries and distributing centers within it. The traveler notices a new road numbering on the trunk roads. New E-lettered roads form an integrated pattern, not for individual countries, but for the continent as a whole. And on the railroads are freight cars with a new *Europa* marking, indicating that they serve the transportation needs of a continent rather than a country.

Not all these developments are restricted to the area of the community. Some embrace also the countries of OEEC and a few, admittedly the least significant (such as the numbering of roads), extend to countries of the Communist bloc. And to the contemporary happenings within this bloc we must now turn.

Eastern Europe

The historical distinctiveness of eastern Europe has already been emphasized. This was further emphasized by the Communist seizure of power over the area as a whole, and by the political and economic changes that have since been made within the area. Ironically some of these changes were prompted by the developments in western Europe that have been described in the foregoing pages. Developments in eastern Europe formed a kind of mirror image of those taking place in the west.

COUNCIL FOR ECONOMIC MUTUAL AID

The first important step in western Europe was the implementation through OEEC of George C. Marshall's conditional offer of American aid. The

Soviet Union was quick to react. In January, 1949, the Soviet Union announced the formation of a Council for Economic Mutual Aid (COMECON). The first members, in addition to the Soviet Union itself, were Bulgaria, Czechoslovakia, Hungary, Poland, and Romania. Other countries which desired "to participate in broad economic cooperation with these countries" were invited to join the council, but the only country which took advantage of the offer was Yugoslavia, which had broken with the Soviet Union half a year earlier and was refused admittance. Subsequently, East Germany and Albania were admitted.

Despite its superficial resemblance to the organs of cooperation between the west European states, COMECON is in fact quite different. It does not provide for the easing of trade, for the reason that among members of the Communist bloc all trade is state-controlled and takes place only in response to commercial agreements negotiated between governments. The function of COMECON has been rather to coordinate the plans of its members, to allocate priorities, and to meet the problems raised when countries fail to meet their production quotas and the whole barter system of exchange within the bloc countries is thrown into confusion. At the annual meetings of the council, discussion seems to have turned on such problems as the international division of labor within the bloc—problems which in the west are handled by the free market economy but in the east by government action. Thus questions of the local specialization in the construction of trucks and components of machines, of the manufacture of electrical and electronic equipment, coke and chemicals, were discussed, and decisions taken. COMECON also discussed and agreed upon the nature and extent of an electric grid network for the area, on the construction of canals within the bloc, and, most recently, on the laying of a petroleum pipeline from the Soviet Union across Poland to East Germany and Czechoslovakia.

COMECON is thus a mechanism for consultation among the planning agencies of its several governments, whereas it is the task of the European Economic Community to secure within the

territorial framework of its members maximum possible freedom to buy, manufacture, and sell.

WARSAW PACT

If COMECON was, in origin, a response to the Marshall Plan and has since corresponded, despite its obvious differences, to the Economic Community, the countries of the Warsaw Treaty correspond with NATO. The Warsaw Treaty was signed in 1955 by the same group of countries as that which comprises COMECON. Its purposes were wholly political and military. It provides for cooperation between the military commands of the Soviet Union and its satellites, and it is the

Warsaw Pact which provides the legal basis for the stationing of Soviet troops in the territory of the satellites.

The two groups of international agreements and organizations, described in this chapter, divide Europe more clearly and precisely into two blocs than any previous divisions of the continent had done. At the same time the contrasts between the two blocs are more strongly drawn than at any time in the past. Even the "gray" area which previously existed along the border of western and eastern Europe is really there no longer. Neutral Sweden, Switzerland, and Austria belong to the west, and neutral Yugoslavia seems on balance to incline toward the east.

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part two

Northern Europe

Introduction to Northern Europe

6

The chapters of this book have been grouped with short introductions into northern, western, central, southeastern, and southern Europe; North Africa and the Middle East; and the Soviet Union. These divisions are all in some degree vague, and it proved difficult to decide in certain instances whether some marginal territory lay in one or another. But with northern Europe there was no indecision. Northern Europe is made up of Norway, Sweden, Finland, Denmark, and Iceland. If the author had been writing in the 1930s, he would probably have considered including the so-called "Baltic States" of Estonia, Latvia, and Lithuania, but on the eve of the Second World War these territories were absorbed into Soviet Russia, from which it seems unlikely that they will be severed.

This part of Europe has in common a high latitude and a cool, moist climate. The most southerly island of the Danish archipelago lies in the latitude of Labrador; Stockholm lies as far north as Alaska, and the North Cape of Norway is as near the pole as any point on the mainland of North America. Yet the climate, at least of the more westerly and more maritime parts of "Scandinavia," as the countries of Norway, Sweden, and Denmark are often called, is moderated by the North Atlantic Drift (see page 23), and

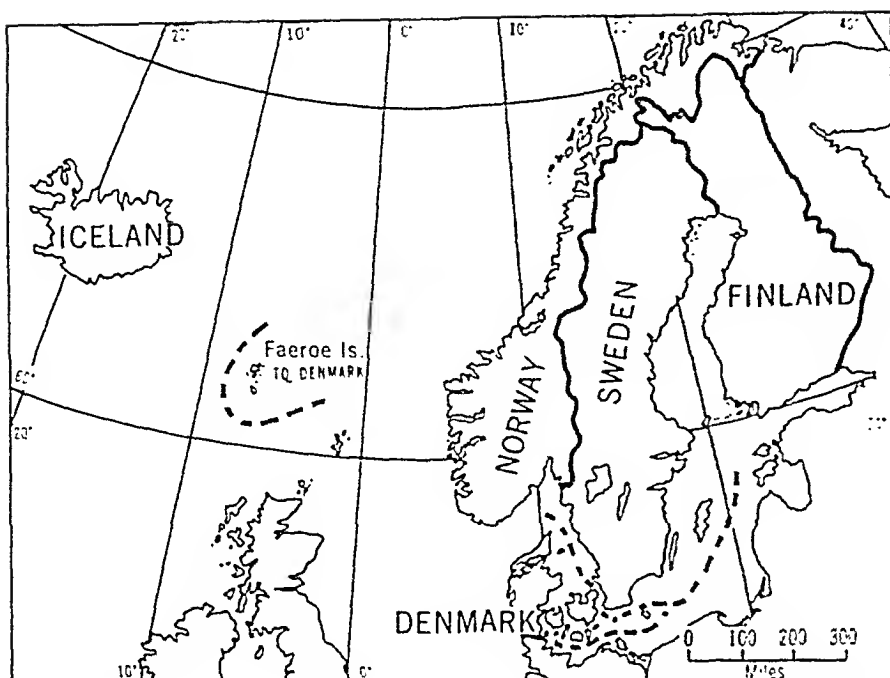


FIGURE 6-1. The countries of northern Europe.

all its Atlantic ports are ice-free. But only a short distance inland from the west coast the climate becomes more severe. Parts of the Baltic Sea are icebound in winter and even ports like Stockholm are accessible only with the aid of an icebreaker. Rainfall or snow may occur at all seasons. Much of the rain falls as a thick mist rather than as heavy rain.

A consequence of the high latitude is the great length of the day in summer and of the night in winter. A considerable part of Norway and Sweden lies within the Arctic Circle. Here the sun does not rise at all for a period about mid-winter but betrays its presence only by a glow that hangs over the southern horizon at midday. At midsummer the sun does not set but swings low along the northern horizon. Farther to the south the summer days are long, even if not of 24 hours duration, and the winter night is interrupted by only a short period of sunlight. In these high latitudes the light is more suffused than farther to the south. The sky is a pale, opalescent blue, and the coloring of trees and mountains is softer. These northern lands have a beauty not found in other parts of Europe, unless it be in the north

of Scotland, where somewhat similar conditions are produced.

Most of the area studied in this section of the book, all, in fact, except Denmark and the most southerly province of Sweden, is made up of rocks of great geological age (pages 5-6). These have been folded, eroded, uplifted, and planated during an immense period of time. They have been hardened, intruded with metalliferous ores, and reduced to the rolling plateaus of generally subdued relief which we see today. Only along the fiord coast of Norway have truly rugged landforms been produced.

Denmark and the extreme south of Sweden belong, by contrast, to the plain of northern Europe. The rock of which they are built is softer, and the initial landforms more gentle. These landforms have, however, been covered by a thick layer of glacial deposits, so that these areas are, in fact, the creation of the Ice Age.

Geographically the whole of northern Europe has been influenced by the Ice Age; all its higher ground has been scraped bare of soil; its lower, covered with drift. In consequence, large areas are covered with infertile sands and gravel. Some

areas, particularly North Jutland, the Danish islands, and southern Sweden, are marked off by their good dairyland. Elsewhere soils are generally poor. Wheat is rarely grown, and the commonest cereals are rye and oats, suited to both the harsh climate and the infertile soils.

The inhabitants of these northern lands have in common a stability and moderation which is lacking in most countries farther to the south. Some people would say that the cool climate has induced the slowness, moderation and freedom from passion which have made their history so quiet and well ordered. But the peoples of northern Europe were not always so. They have had their period of violence and aggression. During the early Middle Ages, the Vikings from Norway raided the coasts of northern England, settled Iceland and southern England, and even discovered the coast of North America. Danes invaded England and France and even went so far as to settle in southern Italy. The Swedes crossed the Baltic, sailed up the Russian rivers and down to the Black Sea, founding the earliest Russian state. In the sixteenth and seventeenth centuries the Swedes made the Baltic Sea a Swedish lake, conquering Finland and lands around the eastern and southern shores. Swedish troops were the terror of northern and central Europe, and only the rise of Prussia and Russia set a limit to their conquests. Early in the eighteenth century the Swedish star paled before that of Russia, and the period of Swedish military glory ended when Russia and Prussia interested themselves in the affairs of the Baltic.

It would probably be correct to say that the northern peoples have grown to political maturity and have learned to live together earlier than some others. They have had their problems and disputes, but these they have settled peacefully and reasonably. They willingly submitted their bitterest disputes, such as that regarding sovereignty over the Åland Islands (page 123) and the measurement of Norway's territorial sea, to the judgment of the International Court. The peace and reasonableness which characterize their relations with one another distinguish also their internal governments. They have made democracy work more

easily, more smoothly, and more effectively than almost any other nation which practices democracy. Their willingness to compromise, their reluctance to adopt extreme ideas and policies are in part the source of their success. They display that foremost characteristic of educated people—reasonableness, moderation in all things, and a willingness to compromise and to take the middle way.

The peoples of northern Europe have attained a very large measure of material progress. They have achieved a compromise between the evils of the planned and regimented economy and those of unbridled free enterprise. Their living standards are above the European average, and the expectation of life is long. Public health is good, and a long list of writers, artists, and musicians show how these countries excel, despite their small population, in the creative arts. But they have been fortunate. Sweden and Norway had been free from invasion and war for a century and a half until Norway was attacked in 1940. Apart from the short and by no means destructive war with Germany and Austria in 1864, Denmark had been similarly free until the German invasion in the Second World War. Finland's history is more disturbed. She came into being by revolt against Russia following the First World War and since then has twice had to defend herself against the Russians. In recent times these northern countries have not maintained large armies and have not, for the most part, spent large sums on national defense.

They have been fortunate, furthermore, in the size of their populations. None is really overpopulated, and none is faced with a population increasing in number faster than it can be absorbed. Each has achieved a balance between agriculture and industry which contributes to economic stability. Norway has too small an extent of agricultural land, Denmark is heavily dependent on the export of the products of its dairy farms, and Finland on that of its forest products, but these difficulties are small compared with those of southern and eastern Europe.

Manufacturing industries are well developed in Sweden but in most parts of the country are

subsidiary in importance to agriculture. Resources for modern industry are not great. There is no coal of adequate quality, though the strong relief and high rainfall make the generation of hydro-electric power very important. There is a wealth of iron ore and of certain other metals, but in general these countries are situated too far from the sources of raw materials, except softwood timber, ever to become mass producers of factory goods on a large scale. Instead, their inhabitants produce goods of quality: high-grade steel, light machinery, farm equipment, and the refined products of a highly developed and most efficient farming industry. Both agriculture and industry have

been developed in the face of natural difficulties. The northern peoples take the "middle way." They compromise with nature as with one another.

Iceland lies over 400 miles from the Norwegian coast, but its cultural ties are with Scandinavia. It was colonized in the early Middle Ages by Norse settlers; its language derives from Old Norse, and its "classical" literature is concerned almost wholly with these early voyages of exploration and settlement. For many centuries it was part of the Danish Crown, and was politically part of Scandinavia. In 1944 it severed this political link, and today stands apart from the Norden group of countries.

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Norway

7

The Scandinavian peninsula consists of a mass of ancient, crystalline rocks which extends for some 1,250 miles southwestward from the coastline of Arctic Europe. Norway is the northwestern or seaward edge of this peninsula. For much of its length of 1,400 miles from the Finnish border to the shores of the Skagerrak it has a width of no more than 75 miles. It expands in the extreme northern province of Finnmark to 150 miles, and in the south, Norway broadens into a tabular mountain mass with eastward-flowing rivers which converge in a small area of lowland close to the Swedish border. For most of its length the boundary with Sweden follows high mountains. It rarely coincides with the watershed except in the north; even less frequently does it traverse a clearly defined line of peaks. In general it follows the surface of a high and undulating plateau on which the drainage is sometimes indeterminate and the population always sparse.

Norway extends through more than 13° of latitude, and in this distance the climate changes quite considerably, but the whole of the country belongs to the moist, mild region of western Europe. Climatic conditions are strongly influenced by the North Atlantic Drift, which influences directly the whole Norwegian coast. The prevailing westerly winds blow from the ocean, carry-

ing both warmth in winter and abundant rainfall to Norway. Conditions vary, however, within short distances. The mountains are responsible for the formation of strongly marked rain shadows in valleys parallel to the coast. At one point in southwestern Norway, the rainfall in the coastal mountains is about 100 inches in the year. Only 15 miles to the east, in Hardanger Fiord, it is only about half this. The eastern slope of the plateau of southern Norway is very much drier than the western. There are many sheltered valleys where the rainfall sinks to less than 20 inches and some where it is less than 12. In some places Norway is obliged to resort to irrigation. The heaviest rainfall is experienced on the westward-facing coast of southern Norway. To the north it gradually diminishes and around the North Cape is only about 25 inches. Temperatures show a similar range. Along the coast the range of temperature is everywhere small. Winters are mild, and sea ice does not form. The difference in temperature between the extreme north and the extreme south is far less than the difference in latitude would suggest. Within a short distance of the coast, however, the temperature range increases sharply. The number of days with frost rises near the Swedish border to almost two-thirds of the year, and the snow cover is similarly prolonged.

Norway falls into three major physical divisions:

FIORD COAST

To much of the world the fiord coast is the characteristic region of Norway. Economically, however, it is very much less important than the lowlands of the southeast. The ancient plateau, of which much of Norway and Sweden is composed, here comes close to the coast. Its steep, irregular edge has been eroded to form the deep, narrow, branching fiords. Off the coast is a line of islands, most of them small and low, exposed to the Atlantic gales and almost devoid of soil, vegetation, and human life. These islands form the skerry guard. In general, they are not unlike the islands off the coasts of northern and northwestern

Scotland. Off the coast of northern Norway, however, in the Lofoten group, they become very much larger and higher.

In general, the fiords have a rectilinear pattern. Arms or branches tend to join the main fiord at right angles, and the fiord itself tends to make sharp bends. The floor of the fiord shallows, especially near its mouth, where a "lip" may often occur. Similar submerged bars may interrupt the course of the fiord, and landlocked lakes frequently continue up the valleys of the fiords, from which they are cut off by low, flat areas of rock or alluvium. The sides of the fiords are generally steep. Most often they rise directly from the water. Sometimes narrow strips of flatter land, in places only a few yards wide, lie between the cliffs and the water and support a small village settlement. The consensus at present appears to be that the fiords of Norway have been eroded by the action of water and ice in a land mass that has suffered extensive faulting and shattering, that the course of erosion was in large measure "fault-guided."

The coast is in places bordered by a rock-cut terrace, known as a "strandflat." It lies only a few feet above sea level and often provides a site for human habitation. It is generally narrow and exposed but, along with the small flats and alluvial deposits at the sides and heads of the fiords, contains most of the population of the coastal region.

The fiords are little more than deep clefts in a high, barren, and undulating plateau. The plateau's surface is almost devoid of vegetation except for low-growing arctic plants and peat. Tree growth is almost wholly absent except in sheltered depressions, and here it is limited to stunted conifers and birches. Woodland occurs, however, on the gentler hill slopes around the fiords. In places, the upper slopes of the fiords serve as summer grazing, and here, on the seters, are groups of huts inhabited by dairymen during the summer months. Villages are in general small, as areas of cultivable land are not extensive enough to support a large community. Most towns, including Bergen and Trondheim, are situated on the coast. Smaller towns are important as fishing

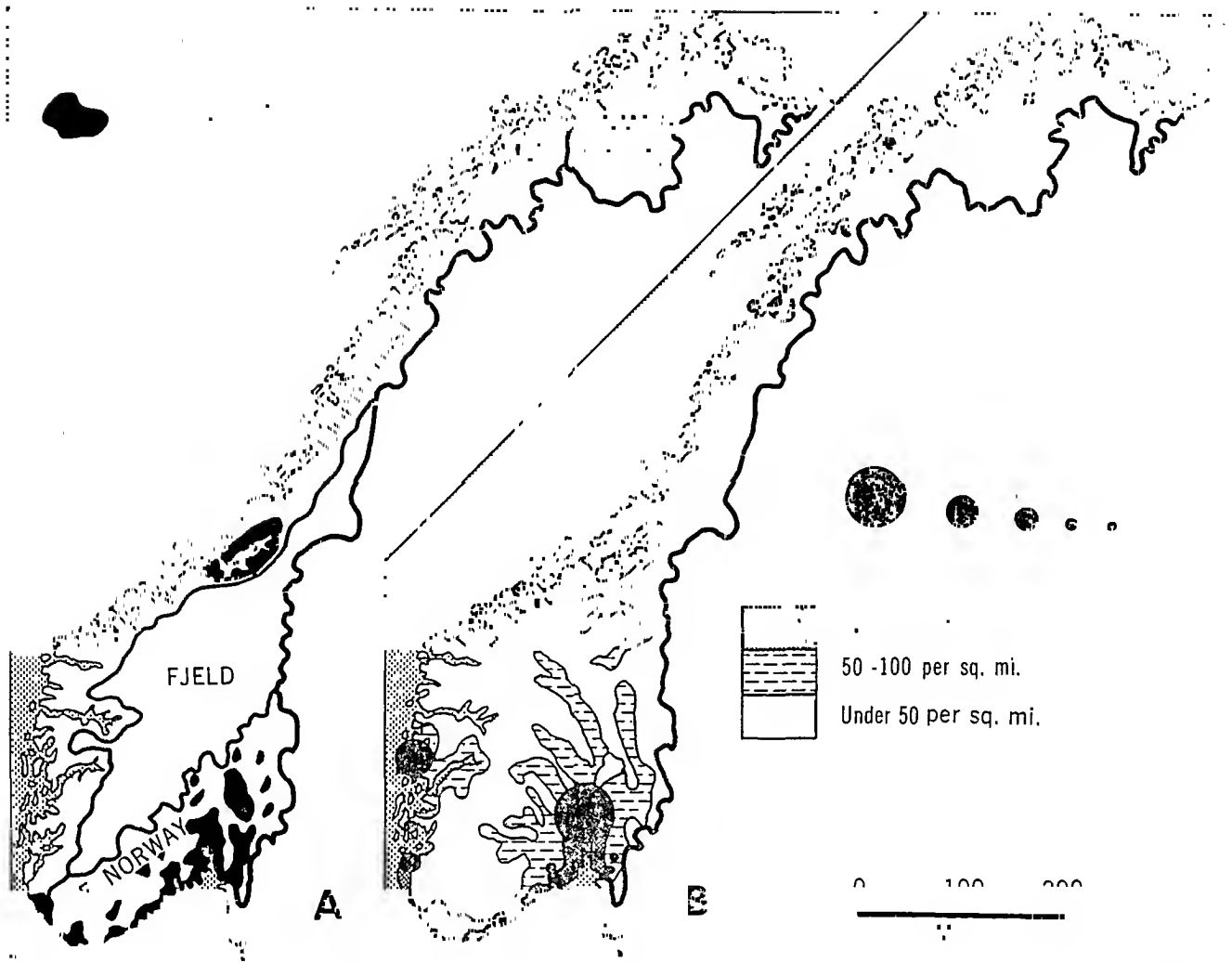


FIGURE 7-1. Norway: (a) landform regions; (b) population distribution and cities.

ports and as centers of the industries that have recently developed on the basis of hydroelectric power. Most of this coastal region, however, is losing population, as more and more people give up the unequal struggle to cultivate the barren soils in this ungrateful climate.

Bergen (117,000) is built on a small area of flat land, protected from the ocean by a group of low islands. During the Middle Ages it was an important trading center and a member of the Hanseatic League. From its earliest times it has been a center of the fishing industry and is today Norway's most important fishing port. Trondheim (58,000) is a smaller city, situated on the shore of the deep and sheltered Trondheim Fiord. The

surrounding area is less mountainous than most of the Norwegian coast, and Trondheim serves as a center for its agricultural and forest industry. Stavanger (52,000) is a fishing and ship-building port, but other urban settlements are very small. Narvik (14,000), the terminus of a railway which crosses the mountains to northern Sweden, is a highly specialized port handling the export of Swedish iron ore.

In the past, the fiord coast of Norway suffered from overpopulation. The small area of cultivable land along the sides of the fiords could not be extended, and migration became the alternative to starvation. The Norwegians became sailors and developed a large and important merchant marine.



Bergen is spread over many small islands, and is backed by the high, bare hills of southern Norway. The very long waterfront is of great value in handling the immense number of small craft which use the port. (Aerofilms.)

Today, factory industries, based on the abundant and cheap supply of electric power, are providing employment. Bauxite and copper are smelted electrolytically, and electrochemical industries are carried on in many factories, established close to the generators, along the shores of the fiords.

THE FJELD

The fjeld is a barren plateau, built of ancient crystalline rocks and reaching an altitude of over 4,000 feet over most of the area. The region has been largely swept clear of soil by the glaciers, and its summits are smoothed and rounded. Hollows in the rock surface are now filled with water or peat. The deep valleys cut into the plateau surface are in part clothed with coniferous woodland, and their floors form the only significant areas of crop farming. Rising above the plateau around the head of the Sogne Fiord are the rugged peaks of Jostedalbreen, where survives

the largest ice field in Norway. Formerly the greatest possible use was made of the scanty pastures which these high plateaus offered, by sending the herds up to graze in the summer. These upland pastures are known as "seters." Like the "alps" in Switzerland and Austria, the "seters" are gradually being abandoned and the fjeld, like the fiord, is gradually losing people to the more developed region of southeastern Norway.

SOUTHEASTERN NORWAY

On the east the high fjeld drops gently to the hilly country drained by the Glomma and its tributaries. The hill slopes are more gentle, the rivers broader and slower-flowing, the climate drier, and the sunshine more abundant than in the hills and fiords to the west. The higher ground is forested with pine and spruce, but the lower and gently sloping land is well cultivated. Fields are small and

enclosed by hedges or fences. The settlement pattern is dispersed, and farms lie at intervals along the bottoms of the valleys. Though near the effective limit of cereal cultivation, an appreciable area is under crop husbandry. Rye, oats, and barley are grown, as well as potatoes and fodder crops, but wheat is important only in the warmer area close to the Oslo Fiord.

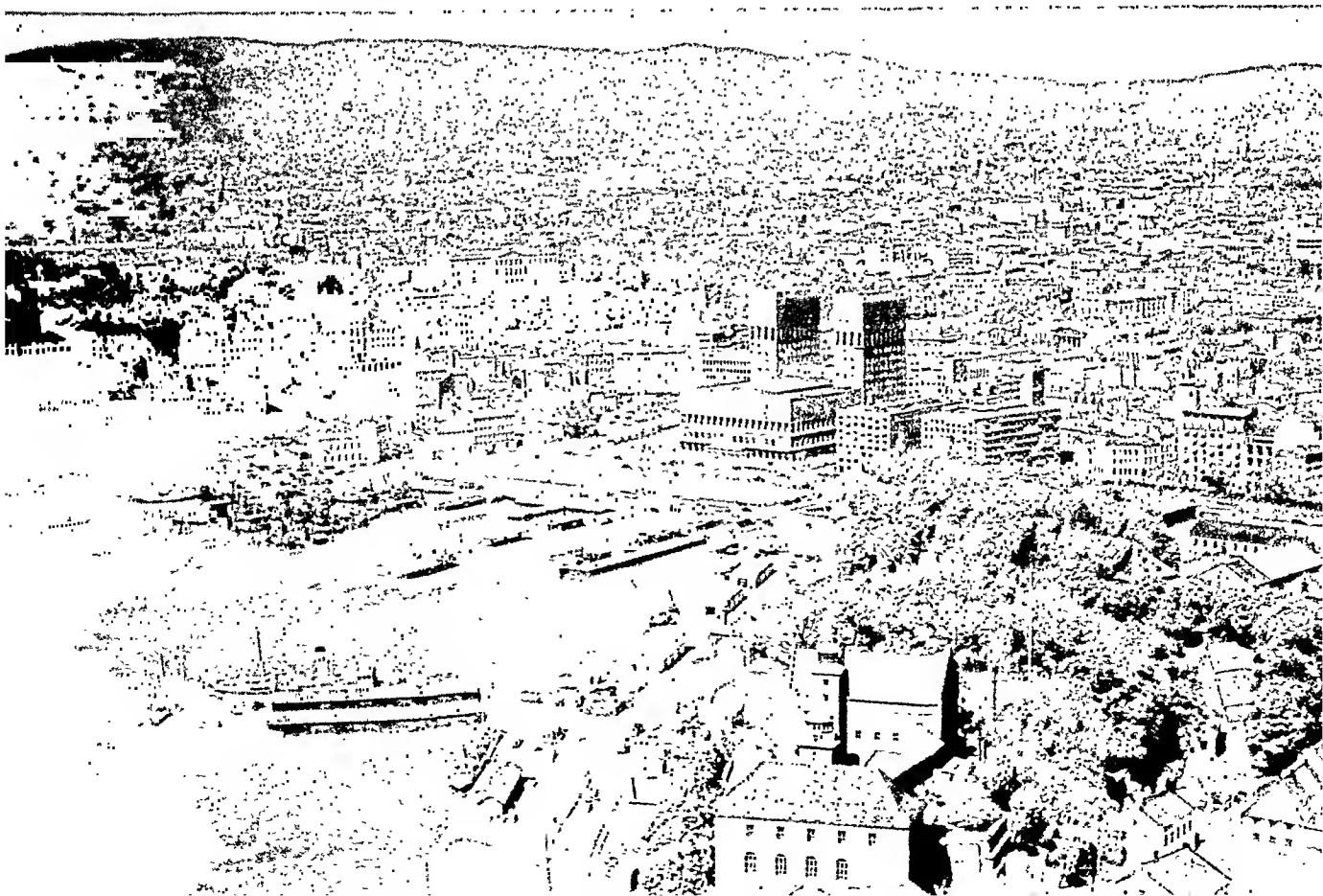
Not only is this region important for its agricultural development, it is also the outstanding industrial area. Along the margin of the fjeld are timber, pulp, and paper mills, and close to Oslo Fiord are metallurgical, chemical, and engineering industries. Communications are good by Norwegian standards. The natural focus of this region is the city of Oslo, lying at the head of Oslo Fiord, where many of the valleys of the fjeld and of the southeastern lowland converge. Oslo

is a city of medieval origin and has now 483,000 inhabitants. Its industries, in addition to those associated with the local agricultural and forest products, are concerned with the working of imported raw materials for consumption in Norway. This is a region of steadily increasing population.

ECONOMIC DEVELOPMENT

Agriculture gives employment to about a third of the working population. Cattle rearing is the most important branch, and crop farming is devoted largely to the production of animal feed. Domestic agriculture is unable, however, to supply the food requirements of Norway. The practice of transhumance, whereby the animals are grazed in summer on the higher pastures of the seter,

Oslo, the capital of Norway, at the head of Oslo Fiord. Near the waterfront is the modern city hall; in the middle distance and to the left of it is the royal palace. (Aerofilms.)



though declining in importance, is evidence of the marginal nature of agriculture.

The mineral wealth of Norway is varied, but with the exceptions of pyrites and copper, deposits are small and not of great importance. Pyrites is mined in central Norway, copper and iron in the extreme north.

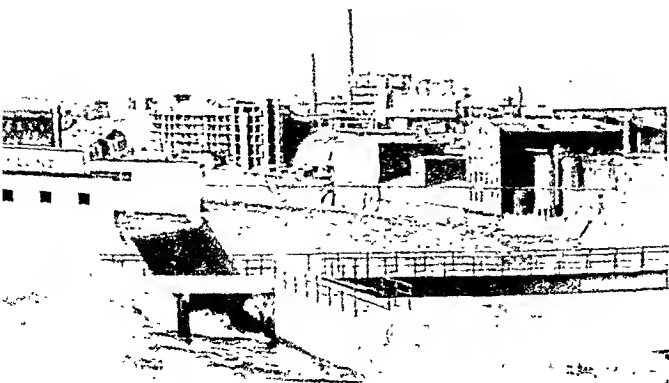
Norway is lacking in all forms of mineral fuel but has abundant resources in hydroelectric power. The rainfall is well distributed through the year, and at least in the coastal districts, frost interferes little with use of this power supply. Hydroelectric developments have been greatest in the south-eastern lowland area and on the margins of the fjeld. Not much power is generated in the north, where there is as yet little industrial demand. At present only about 28 per cent of the hydroelectric potential is being used, but already 99 per cent of the homes have electricity, a higher percentage than in any other European country. The domestic production of hydroelectric power is supplemented by the import of coal and fuel oils.

Industry is heavily dependent upon electric power, and Norway has tended to develop especially those industries which require large amounts of electric power. Prominent among these are the refining of minerals and the manufacture of certain chemicals. The refining of aluminum requires particularly large quantities of electric power, and it is economical to import the purified alumina and to smelt it electrically in Norway, where the current is relatively cheap. Nickel, zinc and iron are also smelted electrically, as well as certain metal alloys such as ferrosilicon

and ferrochrome. Electroplating is carried on, and certain chemicals, such as calcium carbide, calcium nitrate, and various other nitrogen compounds, are manufactured.

Large stands of softwood occur only in the area of comparatively low-lying land around Trondheim and in the southeast. The latter is by far the more important, and here is concentrated the greater part of the Norwegian timber industry. The dominant species are Scotch pine and Norway spruce. Some of the timber is logged for export, but the greatest part of the cut is consumed in the pulp mills.

Fishing is of great importance. The poverty of the land has driven a large proportion of the working population to adopt a life at sea, either in the fishing fleet or in the merchant marine. Norwegian fishing boats work the North Sea, Iceland, Newfoundland, and Arctic fisheries. Cod, herring, and brisling are caught and exported, either fresh or preserved, to countries of western and southern Europe. The importance of the fisheries to Norway led the government to extend its territorial sea by redrawing the base line from which it was measured. In this way the Norwegians secured a monopoly of fishing over a wider expanse of ocean. This action was protested by the United Kingdom, but was settled in Norway's favor by the Permanent Court of International Justice in 1951. Related to the fishing is the declining whaling industry, now carried on by Norwegians in most oceans. There are innumerable fishing ports, with factories which preserve the fish and process the fish oil, fish



The industrial town of Sarpsborg lies on the river Glomma, down which lumber is floated from the interior. The river is lined with pulp and paper mills, powered by hydroelectricity. (N. J. G. Pounds.)

meal (used as a fertilizer), and similar products, along the coast from the Soviet border to the Swedish.

TRADE AND COMMERCE

The problem of internal communications is a serious one. Both road and railway development is adequate in the lowland region of the southeast, but communication between this and the west coast is limited to the few railroads across the fjeld. Farther north the railway network is even less developed. There is no railway which extends the whole length of the country. Roads are more fully developed, but in the north these too are few, and they are blocked by snow for long periods in winter. There are times when the only communication between the more northerly ports is by boat through the islands of the skerry guard or by way of the more developed railway system of Sweden, though aircraft are used increasingly.

Foreign trade is large in proportion to the population, and the prosperity of Norway depends heavily on it. Most valuable are the exports of timber and timber products, followed by minerals, fish, fish products, and chemicals. Imports are largely the foodstuffs which Norway is unable to produce, together with the raw materials of the limited manufacturing industries.

The Norwegian merchant marine is at present the third largest in the world, and is exceeded only by those of the United States and United Kingdom. Important as foreign trade is to Norway, this fleet is far larger than is needed for this purpose. About half of it consists of tankers, and the rest of freighters. These are employed in the commerce of the world; their earnings contribute to the income of Norway and service on the ships provides a valuable source of employment. Norway suffered heavily between 1940 and 1945, not only from the direct results of the fighting, which took place in many parts of the country, but also from the indirect consequences, the loss of trade and the inability to import foodstuffs and export pulp and paper, metals, and chemicals.

Norway is not naturally a united country. It

TABLE 7-1. Chief Elements in Norway's Foreign Trade, 1962 (In Millions of Kroner)

Item	Imports	Exports
Food	1,117.51	1,077.54
Beverages and tobacco	116.07	9.37
Crude materials	1,234.90	1,061.93
Mineral fuels	1,048.00	226.61
Animal and vegetable oils	88.12	213.17
Chemicals	781.71	582.12
Manufactured goods	2,263.80	2,668.89
Machinery and transport equipment	4,358.44	857.26
Miscellaneous manufactured goods	779.18	194.68
Miscellaneous transactions and commodities	28.53	57.40
	11,816.26	6,948.98

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1961.

is broken by its strong relief into compartments, fiords and mountain valleys, cut off from one another by high and often impassable mountains. For this reason its political independence is itself recent in date. Norway had not a sufficient degree of unity to break with Denmark and Sweden, which had in turn controlled it, until the early years of this century. Even now, the country tends to function as a group of local and in part self-governing units rather than as a unified state.

Svalbard (or Spitzbergen) is an arctic possession of Norway, lying between the latitudes of 77° and 80°N, about 730 miles northwest of the North Cape. The island group is irregular in shape and heavily glaciated. Much of it is covered by a permanent ice cap. It has a strategic value which may be expected to increase rather than diminish. Its economic importance is limited to its quite considerable deposits of coal, which are worked and exported despite the very unfavorable physical environment. The Soviet Union holds a lease on three of the six coal mines, and actually ex-

tracts and exports three-quarters of the total coal obtained in Svalbard.

Jan Mayen Island, small and glaciated, is a Norwegian possession lying between Iceland and Spitzbergen. It is uninhabited.

Iceland

Iceland, an island of 39,700 square miles, lies in the stormy North Atlantic. Its northern coast is almost on the Arctic Circle. The island was colonized by Norse peoples in the ninth century and remained until 1944 under the Danish Crown, but in that year it severed its connection and became an independent republic.

Iceland is a rugged, glaciated island. Its coast is fringed with high cliffs and deep fiords, which provide shelter for its fishing fleet. The climate is cool and wet. Snowfall is heavy, and the island contains Vatna-Jökull, the largest ice field in Europe. Most of the surface is waste and treeless. Sheep are reared in large numbers, but climate and soil are unsuited for agriculture, and only 0.5 per cent of the area is cultivated. There is grazing land in some of the valleys, but crop cultivation is confined to the lowlands of the southwest.

The chief—almost the only—occupations are agriculture and fishing. The surrounding seas afford a rich harvest, which is taken not only by the Icelanders but also by several other peoples of western Europe. The excessive dependence of the Icelanders on the harvest of the seas around their shores made them jealous of the vessels of other countries that came here to fish. Their anxiety was increased by the danger of overfishing and of the depletion of certain species. Iceland extended her jurisdiction over the surrounding seas, first in 1952 and again in 1958, when she broadened her exclusive fishing rights to a distance of 12 miles from a base line drawn between the outermost points of the headlands and islands around the coast. The United Kingdom protested and for a couple of seasons British fishing vessels operated under the protection of naval gunboats. In 1961, an agreement was reached whereby the

United Kingdom in effect recognized the claims of the Icelanders, subject to limited British rights for a period of three years.

Iceland is heavily dependent on foreign trade, the exchange of her fish and fish products for the vast range of things which, from the nature of her geography, she cannot produce. Table 7-2 gives the chief categories in her foreign trade in 1960.

The capital and largest town is Reykjavik, situated on a fiord of the southwest coast, but its population is only about 75,000. The population of the whole island is only 183,500 (1962).

Until recent years the significance of Iceland in the affairs of Europe had been slight, but its position where the Atlantic Ocean is narrowest gives it a greater importance, and as long as there is discussion of transpolar warfare, the significance of Iceland is not likely to be underrated. Iceland became a stopping place on the North Atlantic air route, but the introduction of jet aircraft made

TABLE 7-2. Chief Elements in Iceland's Foreign Trade, 1960 (In Millions of Kroner)

Item	Imports	Exports
Food	399.74	3,099.56
Beverages and tobacco	80.35	0
Crude materials, inedible	208.42	175.9
Mineral fuels	189.22	0
Animal and vegetable oils and fats	29.23	297.59
Chemicals	227.03	5.02
Manufactured goods	1,068.74	28.36
Machinery and transport equipment	1,047.42	0.09
Miscellaneous manufactured articles	288.95	10.34
Miscellaneous transactions and commodities	3.65	1.97
	3,842.75	3,618.85

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1961.

this stop unnecessary, and as a focus of air routes Iceland has declined in importance. Its military importance, however, remains considerable both in the actual defense of North America and in

the early warning system of the United States, and the United States maintains a military force in Iceland by agreement with the Icelandic government.

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Sweden



The Baltic Sea is a large expanse of shallow water which within historical times has been becoming steadily shallower and less salty. Its shores bear evidence of the rise of sea level and the "drowning" which followed the ending of the Ice Age, as well as evidence of the uplift of the land as the weight of the ice sheet was removed. To the west of the Baltic Sea is Sweden, to the east are Finland and the territories which, until their annexation by the U.S.S.R., were known as the "Baltic States." To the south are Germany and Poland. The earliest of these to appear in modern times as an integrated state was Sweden. In the sixteenth and seventeenth centuries Sweden came to dominate the whole sea. Finland had for centuries been controlled by Sweden, and Swedish colonists had settled on its coast, where their descendants still remain. Sweden acquired ports on the southeastern and southern shores. This Swedish hegemony, which gave a certain cultural and economic unity to the Baltic region, was terminated by the rise of the Russian state of Muscovy and of the kingdom of Brandenburg-Prussia in Germany. Each sought an opening to the Baltic Sea. Peter the Great established St. Petersburg (now Leningrad) in 1703 and later broadened his control to Courland and Livland (approximately Latvia and Estonia). The

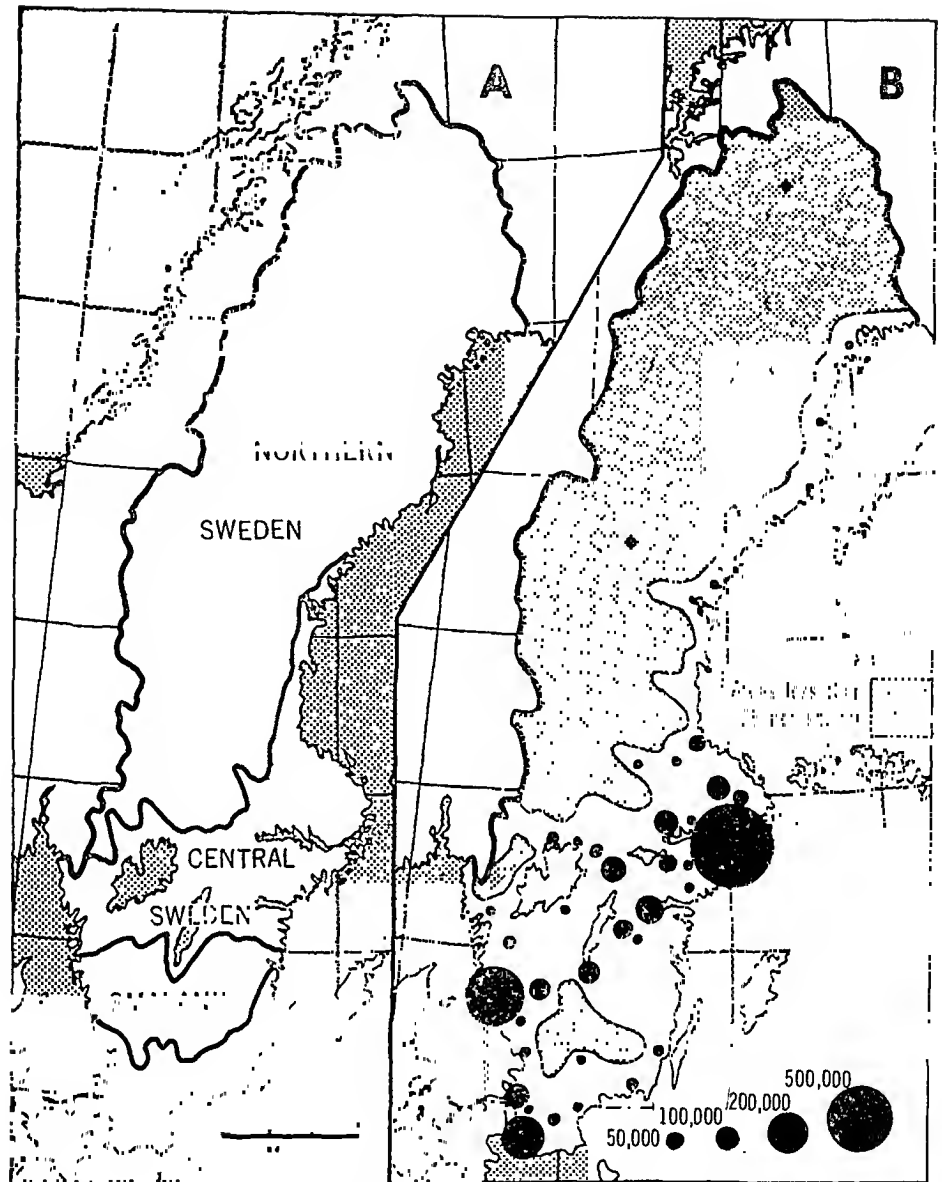


FIGURE 8-1. Sweden: (a) landform regions; (b) population density and cities.

Hohenzollerns of Prussia drove the Swedes from their last foothold on the German coast in 1815. After the period of Swedish domination there followed an uneasy balance between the political strength of Germany and Russia. Until recent years German control was dominant, but the defeat of Germany in the Second World War exposed the Baltic region to a renewed pressure from Russia. The Baltic States together with part of East Prussia have been absorbed into the Soviet Union. The U.S.S.R. has on two occasions,

in 1940 and 1945, taken small areas of Finnish territory and now exercises a strong political influence on Finland and, less directly, on Sweden.

Formerly, over the islands at the entrance to the Baltic and over parts of southern Sweden, Denmark exercised a political control such as Sweden possessed over the Baltic Sea itself. In the course of the seventeenth century Denmark lost her possessions in southern Sweden, though she retained until the middle of the nineteenth the control of the Sound and with it the right to levy

dues on vessels passing in and out of the Baltic Sea.

Sweden is the larger, eastern part of the Scandinavian peninsula. Much of the country consists of a dissected plateau whose general level sinks from the watershed, close to the Norwegian boundary, to the Baltic coast. South of this dissected plateau is a region of glacially and lake-studded lowland, in which are most of the towns and a majority of the Swedish population. On the southern margin of this lowland rise the rounded, forested hills of Småland. All the regions of Sweden mentioned hitherto are built of ancient rocks, much folded, faulted, and planated in earlier cycles of erosion. In the southernmost region of Sweden, however, the older rocks are buried beneath younger limestone and chalk. The landscape and economic development of this southernmost province of Scania (or Skåne) greatly resemble Denmark, of which it was once a part.

NORTHERN SWEDEN

Northern Sweden makes up about two-thirds of the entire country, but of the total population of about 7,580,000 in 1962, little more than a sixth lives here. Toward the west it is made up of sharp, isolated peaks, whose summits reach heights of over 6,000 feet. East of these, however, there is a long and narrow belt of softer and more easily eroded rocks, but toward the east these give way to the crystalline mass which composes the greater part of Sweden. The belt of softer rocks has been excavated to form a depression between the folded mountains on the west and the crystalline plateau on the east. It is irregular and far from continuous. On the physical map it is recognized more clearly by the large number of lakes that occupy hollows excavated in its surface than from the contours themselves.

Both the region of the lakes and the crystalline region to the east of it are undulating country. Most of the many rivers of this region of Sweden rise in the mountains close to the Norwegian boundary and cross these more easterly belts of country in broad valleys sunk quite deeply below

the plateau surface. The level of the plateau itself drops toward the east and, close to the Baltic Sea, is covered with recent marine sediments which are fertile and would be productive if the climate were less rigorous.

The north of this region lies within the Arctic Circle. Its winters are long and severe, and snowfall is heavy. The summer is cool and bright, but too short for most cultivated crops to grow and mature. Some agriculture is practiced along the coastal belt, where soils are better and the climate is moderated somewhat by the proximity of the Baltic Sea. But the amount of agriculture diminishes both northward and westward from the coast. Hardy cereals—barley, oats, and rye—are grown, but wheat is a rare crop. Vegetables, fodder crops, and cultivated grasses make up the rest of the produce of this region. Dairy farming is carried on only where climate and soil make it practicable and where communications are sufficiently developed to permit the movement of milk to the dairies or consuming centers. This is a region of hamlets and scattered farmsteads, though much of it is uninhabited. Buildings are made almost wholly of wood, the cheapest and most abundant material, and styles of farm buildings are adapted primarily to the climate and to the building material. A form of transhumance is still practiced, though on a diminishing scale. The cattle are sometimes taken in the summer months to the *fabod*, a forest clearing or stretch of treeless, higher ground, in order to leave the home pastures free for making hay. Hay is a precious commodity; it is cut and dried with great care, a matter of some difficulty where the summers are humid and cool.

The higher land, in the mountainous belt to the west, is covered with short grass or bog. In places, the glaciers have scraped away the soil, leaving only bare rock. Forests, however, cover the lower ground, though in the north they are thin and stunted. The region lies to the north of the limit of most broad-leaved trees, but the birch is still conspicuous in its beauty, contrasting with the somber coloring of the spruce forests, which predominate. Lumbering is the most widespread industry of this region. The logs, cut in the forests,



Spring in northern Sweden. The landscape is one of bare, rounded hills, with a scanty tree growth on the lower and more sheltered ground. Here the ice is beginning to break up and the snow to melt from the hills. (American-Swedish News Exchange.)

are floated down the great number of rivers to the sawmills near their mouths. Many small ports along the Swedish coast handle the export of timber and pulpwood.

Mining is the only other important industry. Iron is scattered widely through the ancient crystal-line rocks, together with a number of other minerals. Of these, copper was formerly of outstanding importance, though it is now almost exhausted in central Sweden. It was mined at Falun, close to the southern edge of the region, and its export brought wealth and importance to Sweden in early times. The production of iron ore in the southern part of this region is now also small, though its nonphosphoric quality gives it some importance and it is the basis of production of high-grade steel in central Sweden. The ores of Lapland have come in the past half century to play a very important role. They are easily worked. Those at Kiruna are taken from open cuts, rising in steps up the sides of the steep hills which are themselves composed largely of iron ore. Shafts, where they are used, are not deep. The ores themselves, generally magnetite or hematite, are of a relatively high grade; they usually contain over 60 per cent iron, but are phosphoric. The production of ore in Sweden in 1961 reached about 23,000,000 tons (metal content, 13,333,000 tons), of which over

20,000,000 tons were exported. Before 1891, ore production was quite small, less than a million tons a year. In that year, a railroad was at last completed between the mines of Swedish Lapland and the Baltic coast port of Luleå. At once the volume of export increased. Luleå is icebound and inaccessible to ore ships in winter, and the seasonal nature of the export led to the continuation of the railroad from the ore fields across the high fjeld to the Norwegian port of Narvik, which is ice-free. This railroad was completed in 1902. Elaborate ore-loading devices were erected. Narvik has grown to be a town of over 13,000 inhabitants, and the volume of export of both Luleå and Narvik increased steadily. In 1940, an electric furnace for smelting Lapland ore was established at Luleå, primarily to provide employment and to assist the economic development of northern Sweden.

The mineral wealth of Norrbotten, as this northern province is called, is not limited to iron ore. At Kristeneberg are large reserves of copper, which are now being worked. Gold is obtained at Boliden, and there are reserves of lead, zinc, manganese, and nickel in northern Sweden. All these metalliferous ores are mined, but the production of the nonferrous metals is still insufficient to meet home demands.

In contrast to the settled Swedish inhabitants of this region are the seminomadic Lapps. These people, now few in number, constitute one of the most distinctive racial groups in Europe. They are of Asiatic origin, having come into northern Europe from Asiatic Russia. Until recently they had not practiced agriculture, living wholly on the produce of herds of reindeer, which they follow through the wastes of Lapland. The Lapps have never observed political frontiers, moving freely between Norway, Sweden, and Finland.

Northern Sweden is the "pioneer fringe" of modern Sweden. It lacks the long-settled character and the traditions of the south. Money is made easily in its booming mine towns and its lumber and pulp mills and is spent recklessly.

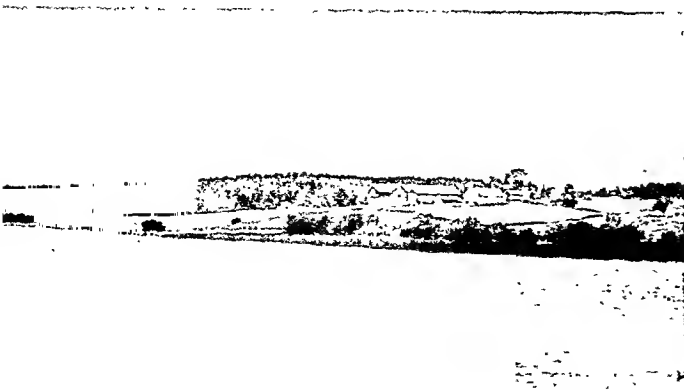
CENTRAL SWEDEN

Central Sweden is gentler in relief and milder in climate than northern. It was the nucleus of the Swedish State from which the kings of the House of Vasa moved outward in the sixteenth and seventeenth centuries to the conquest of both northern Sweden and the southern extremity of the south-western peninsula.

The crystalline rocks which made up so large an area of northern Sweden are continued southward but in central Sweden have undergone extensive faulting. Central Sweden is several hundred feet lower than the region to the north. The faulting has produced shallow trenches, many of them lake-filled, and low ridges with steep sides which follow the lines of faults. The relief is low but broken up by these lesser landforms. In postglacial times, before the recovery of the Scandinavian

region from its depression under the ice, the North Sea joined the predecessor of the Baltic across this region. Marine deposits, which now yield fertile soils, were laid down at this time. There are numerous lakes. Lake Vätter is wholly enclosed by faults; Lake Vänern is in part bounded by the lines of ancient faulting, in part by glacial deposits. The complex waterway, formed by Lakes Hjälmarn and Mälarn, which stretches almost halfway across the region, is fundamentally due to faulting, but much modified by glacial deposits. The northward retreat of the ice left in its wake a series of eskers, or narrow, sinuous ridges of morainic material. These lie generally in a north-south direction, and sometimes provide dry roadways above the damp surface of the land. A considerable number of conspicuous eskers cross the lakes, producing islands in their midst and causing abrupt narrowings of the waterway. For this reason, the lakes are not important as navigable waterways, and the towns on and close to their shores make little use of them.

Central Sweden experiences a milder climate than northern. The snow cover is less prolonged, and the growing period is longer. Broad-leaved trees, the oak and ash in particular, are found among the conifers. Much of the woodland has been cleared, and a high proportion of the land is under cultivation. Not only the hardy cereals that are produced farther to the north but also wheat is grown. Much of the land is under grass, and dairy farming is here almost as important as in Denmark. In contrast to the region to the north, there is a pattern of compact villages, always a sign of greater productivity and prosperity, and small towns.



A farm in central Sweden, near Norrköping. The land is moraine-covered, and lake and bog often occupy the hollows in its uneven surface. Farms are large, often with immense red barns. (N. J. G. Pounds.)

On the northern border of central Sweden is the ancient mining region of Bergslagen. There are numerous ironworks. Many are ancient, and all of them have for centuries yielded a high-grade iron used in the Swedish steel industry. Until the nineteenth century Sweden produced from this area a large proportion of the world's output of steel, which was refined in small furnaces with the charcoal from the neighboring forests. The Swedish philosopher Swedenborg wrote in the eighteenth century a treatise on iron smelting and steelworking. The smelting and refining industry, formerly distributed over a large area of central Sweden, has now come to be concentrated in a small number of relatively large centers between Lake Vänern in the west and the Baltic port of Gävle (56,600). Sweden retains today only a small steel industry, as reckoned in terms of output, which is distributed over a number of small towns, among them Domnarvret, Sandviken, and Fagersta. These lie close to the former sources of ore and charcoal. The steel produced today is of a very high quality. Sweden is famous for the production of ball bearings. Eskilstuna is a center of the cutlery industry, and there are many small towns engaged in high quality mechanical and electrical engineering.

With the exceptions of Göteborg (411,000) and Stockholm (803,000), the urban settlements are small. Uppsala (81,000), to the north of Lake Mälaren, is an ancient castle and cathedral town, where a university, the oldest in Sweden, was established in the fifteenth century. The older buildings are clustered on the ridge of an esker, below which the modern town has grown up. Norrköping (92,000), Örebro (77,000), and Västerås (80,000) are other small centers of woodworking, textile, electrical, and mechanical engineering industries. Göteborg and Borås, 40 miles to the east, are the most important centers of the textile industry. Göteborg, on the estuary of the Göta Älv, was established early in the seventeenth century as the port of central Sweden. The Göta Älv drains Lake Vänern. A few miles below the outlet of the lake are Trollhättan Falls, where a small industrial town gathered around the source of power. The river is navigable for small craft, and the Göta

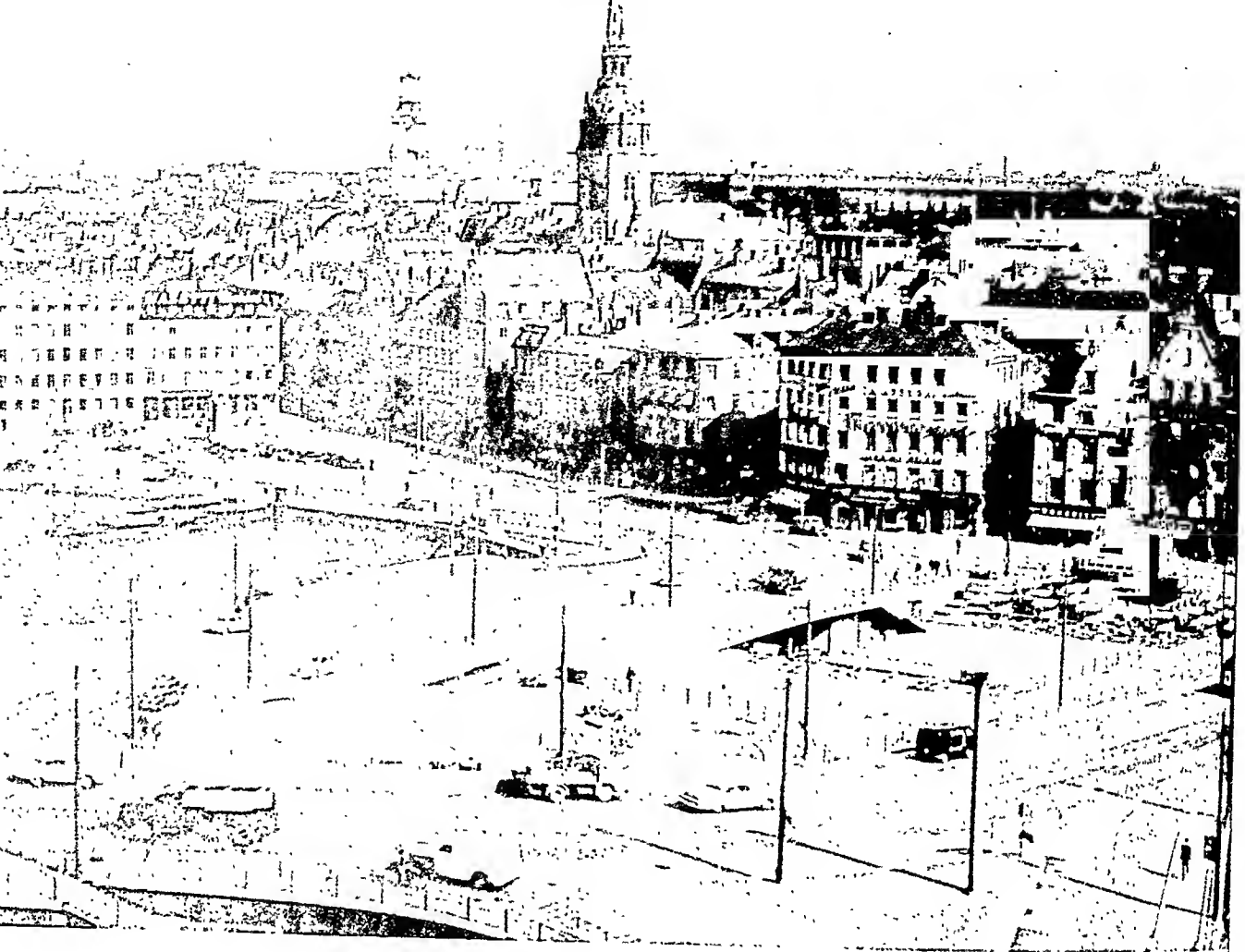
Canal has been cut to join it with Lake Vättern and the Baltic Sea. This canal is too small to have any great commercial significance, but is used by small barges for the transport of pit props and other local products.

Stockholm grew up on an island at the exit from Lake Mälaren, where an esker not only provided an easy approach to the lake but also narrowed it and made the crossing easy. The city has spread from the island to the mainland on each side. It now has over 803,000 inhabitants and has a varied range of textile, electrical and electronic, engineering, and timber-using industries. Its island situation and the beauty of many of its buildings, including the much photographed town hall, have earned it the title of "Venice of the North." Lake Mälaren is tidal, and the port of Stockholm has uninterrupted connection with the sea. The waters freeze in winter, however, though vessels continue to use the port with the help of icebreakers.

Göteborg, by contrast, is ice-free. In size it is second only to Stockholm, and in the volume of its export trade it now greatly exceeds Stockholm. These two cities, Stockholm in the east and Göteborg in the west, focus the activities of central Sweden. No other city has been able either to attain any great size or to rival them.

Småland is a fault-bounded massif of old, crystalline rocks. On most sides its boundaries are sharp, separating it from the lower and more fertile country. Its surface is plateaulike. Much is forested with conifers, and there are stretches of sour and unproductive bog. The population is small, and agriculture but little practiced. Within it, however, are some lesser concentrations of industry. Around Jönköping, at the southern end of Lake Vättern, are pulp, paper, match, and woodworking industries. Within the hills are small, traditional, iron-using industries, and on their eastern margin lies the glassmaking region of Kosta.

Skåne is the southernmost province of Sweden. Geologically it resembles Denmark rather than the rest of Sweden, and it was for many centuries in Danish possession. The young rocks of this region are in part mantled with glacial drift, in part with the marine deposits left during the



Stockholm spreads over islands in Lake Malar, and also the land to north and south. It is an elegant, colorful city. (N. J. G. Pounds.)

postglacial period of high sea level. The climate is milder than that in other parts of Sweden and closely resembles that of the Danish islands. Skåne has always been agriculturally the most productive of all regions of Sweden. Grain cultivation, formerly as important here as in Denmark, has given place in part to dairy farming, which is conducted on a cooperative basis. At the same time, crop farming remains of great significance, and wheat, oats, barley, rye, and sugar beets are of importance. The region is flat or rolling. Farms are large, and settlement is generally in compact villages.

Towns are not large in this region. Many were once fortresses erected in the course of the wars between Denmark and Sweden, and all serve as market towns for this rich agricultural region.

Malmö (238,000), on the coast opposite Copenhagen, is the largest city, the terminus of a ferry across the Sound, and an industrial center.

The islands of Öland and Gotland, the former a mere strip of lowland off the coast of Småland, the latter a large, more compact island, are now of little significance. Both are covered with glacial and recent marine deposits and are now devoted primarily to dairy and mixed farming. They were once, however, important commercial centers both of the ancient Swedish trade in the Dark Ages and of the Hanseatic League trade during the Middle Ages. On Gotland is the town of Visby, whose ruined walls and towers witness to its former wealth and prosperity. Ancient coins from the eastern Mediterranean have been dug up at Visby, evidence of the commerce that was once

carried on between the Baltic Sea and the Black and Mediterranean Seas.

ECONOMIC DEVELOPMENT

Despite the prominence of its mining and specialized manufacturing industries, Sweden is an important agricultural country. Of its working popu-

lation, 24 per cent are engaged on the land. The majority work small holdings and practice a mixed agriculture. Farming is carried on chiefly in southernmost and central Sweden. Elsewhere lumbering and, in places, mining are more important than agriculture. Forest covers about 56 per cent of the area, and lumbering predominates in the non-agricultural areas. The dominant species is spruce,

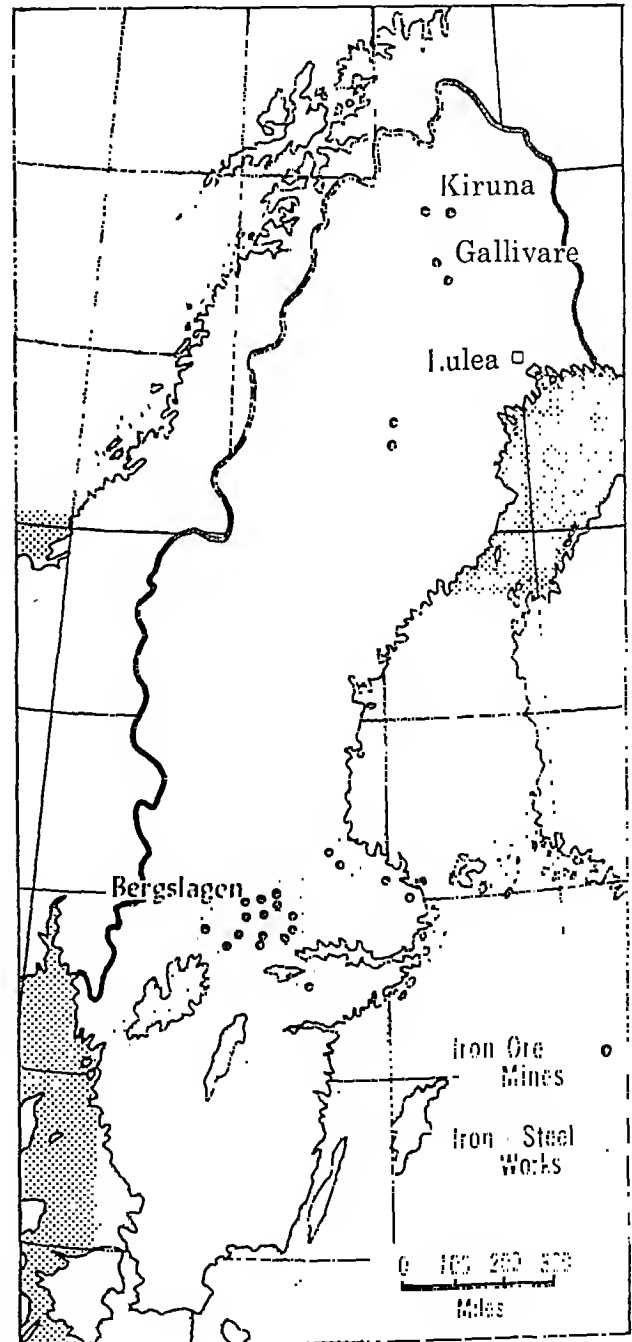


FIGURE 8-2. The iron industry of Sweden.

which is cut for pulping. The sawmills are scattered along the rivers of the forested region, and are concentrated particularly at their mouths on the coast of the Gulf of Bothnia. Originally they were driven directly by the force of the stream, but as the rivers come more and more to be used to generate hydroelectric power, this more convenient source of energy is increasingly used. The chief sources of hydroelectric power are in northern Sweden, at a considerable distance from the main industrial centers. This fact has caused the Swedes to become pioneers in the long-distance transmission of electric power. A little coal is mined in Skåne, but Sweden's rivers form her only important source of power. There remain, however, vast unused potentialities, especially in northern Sweden, where the demand for power is least.

After timber and timber products, iron ore constitutes the most valuable export of Sweden. Almost all the iron ore comes from the extreme north and is exported from the ports of Luleå and Narvik. The ore consumed in the domestic steel industry is obtained from the lesser ore fields of central Sweden.

Despite the importance of her agricultural industry, Sweden is not normally self-sufficing in foodstuffs, though she made do without significant imports during the Second World War. A small quantity of grain has to be imported, as well as animal fodder and foodstuffs of tropical origin. The limited industrial development of Sweden necessitates the import of textile materials as well as rubber and nonferrous metals. The nature of Sweden's exports has already been indicated. They are made up of timber products, ores, agricultural and especially dairy produce, and a limited range of specialized manufactures, which include high-quality steel and ball bearings, automobiles, and electrical and electronic equipment. In many parts of Sweden handicraft industries remain of importance, and the contribution of carvings, embroidery, pottery, and metal work to the export trade is considerable.

Sweden's resources are her forests, her ores, her water power, and the patience and industry of her people. These have fitted her to become a producer of specialized goods for other countries.

TABLE 8-1. Chief Elements in Sweden's Foreign Trade, 1962 (in Millions of Kroner)

Item	Imports	Exports
Food	1,709.4	504.0
Beverages and tobacco	222.9	3.7
Crude materials, inedible	1,131.8	4,114.9
Mineral fuels	2,164.3	61.6
Animal and vegetable oils and fats	112.5	57.1
Chemicals	1,238.4	458.5
Manufactured goods	3,551.2	3,925.4
Machinery and transport equipment	4,576.1	5,353.5
Miscellaneous manufactured articles	1,355.6	577.7
Miscellaneous transactions and commodities	56.4	70.5
Total	16,118.7	15,126.9

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1963.

She must import foodstuffs and certain raw materials; she must export the products of her forests, mines, and factories in order to live. She is heavily dependent on trade, like her neighbors Norway and Denmark. Her geographical position makes her situation a precarious one. She has only a short coastline facing onto the ocean, and Germany and Russia are in effect her neighbors to south and east. Like Switzerland, in a somewhat similar position, Sweden finds refuge in neutrality, though less consistently than Switzerland. Sweden has avoided alliances and tried to remain on good trading terms with all countries. Today she is not represented in the North Atlantic Treaty Organization, while Denmark and Norway are both members. The apparent harmony among the Scandinavian countries, which leads them to act jointly on many issues, disguises certain differences. When all is said, they remain commercial rivals, and frequent consultation does not wholly disguise the differences among their foreign policies.

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Finland

9

Both geologically and culturally Finland is closely related to Sweden. The "shield" of ancient rocks which composes much of northern Sweden is continuous over the whole of Finland and extends beyond her eastern limits to a line which runs from the White Sea through Lakes Onega and Ladoga to the Gulf of Finland. Finland is low-lying, and its greatest heights, in northern Finland, rise to little more than 1,500 feet. Over most of the area the ancient rocks are covered and hidden by a deep mantle of boulder clay and morainic material. During postglacial times, however, marine deposits were laid down over parts of the country, similar to the marine deposits of southern Sweden.

Finland falls naturally into three distinct regions: the low, moraine-covered, lake-studded plateau, which composes all central Finland; the low hills of northern Finland; and the narrow coastal region of the south and west.

CENTRAL AND NORTHERN FINLAND

The thick glacial deposits which cover the whole of central and northern Finland were modified somewhat by the sea when it extended over the region. Still, it remains fundamentally an uneven, clay-covered surface. The

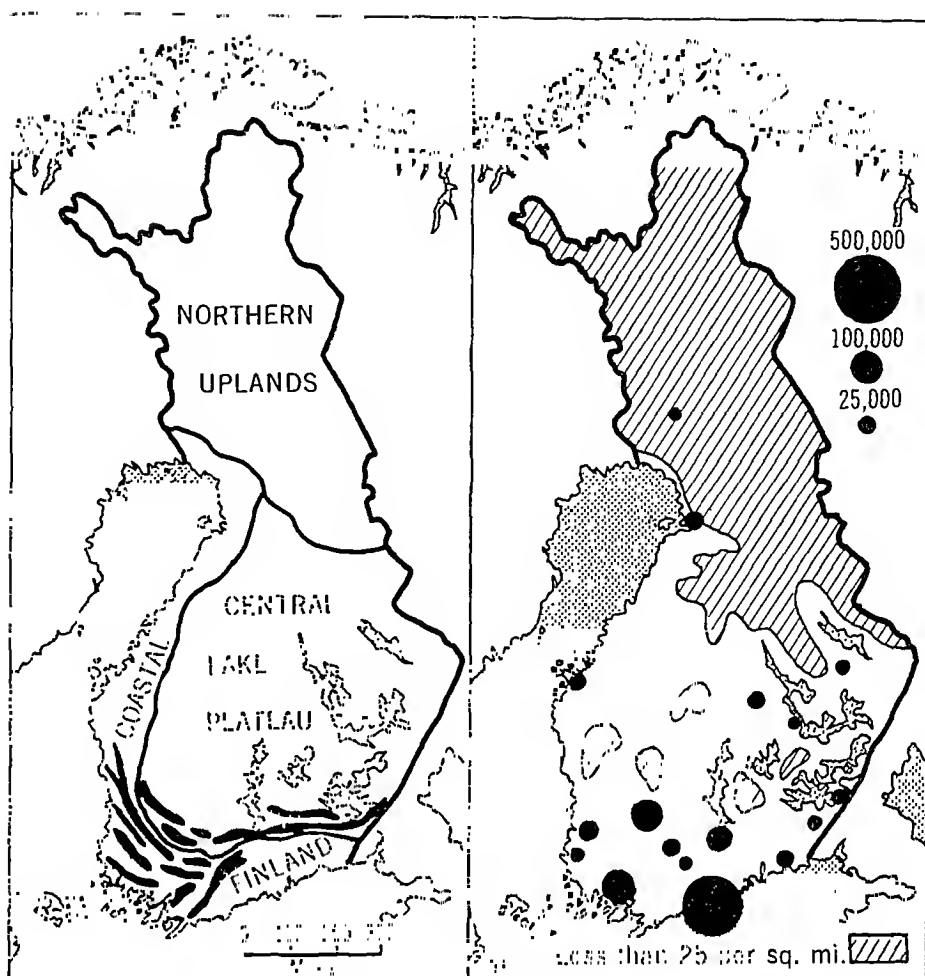


FIGURE 9-1. Finland: (a) landform regions; (b) distribution of population and cities.

hollows have been filled by water to make the 40,000 lakes of Finland. The hills are mounds of boulder clay, esker ridges, and embankments of clay and gravel left by the retreating ice. Villages are often no more than lines of houses drawn out along the crest of a morainic ridge or an esker, and railways and roads often follow such ridges. The railway from Helsinki (Sw: Helsingfors) to Leningrad follows for a considerable distance the crest of the Salpausselkä, a terminal moraine. The multitude of lakes is interconnected, making a complex system of waterways, sometimes used for floating timber. At least 40 per cent of the area of this region is actually water. The land surface is mostly forested with spruce and pine, though birches lend some color to the dark forests. Small

areas have been cleared for cultivation, but the climate is harsh, the growing season short, and the soils often poor. The central plateau of Finland lies very close to the northern limit of cultivation. Barley, oats, rye, and wheat are grown, but only in the southern part. Grazing is possible, and dairy farming is, over much of this region, the only important branch of agriculture.

The landscape is monotonous. In detail the surface is uneven, but the small irregularities rise to about the same height, and the skyline is level. The still, shallow lakes and the dark woods have a beauty of their own. The somber and continuous forest cover has shed an air of mystery over the country and its people, and this atmosphere, as powerful in its way as that of the Western Islands

of Scotland, has been recaptured in the literature and music of the Finns, above all in the music of Sibelius.

To the north of the lake-studded plateau the underlying ancient rocks come to the surface and rise northward into the bare and rounded hills of northern Finland. These have been severely glaciated and are in many places bare of soil. The heavy forest cover thins away, and the conifers become stunted and valueless, the land uncultivable. Northward, toward the Arctic Ocean, this semblance of forest passes into the tundra. The region is valuable chiefly by reason of its mineral deposits. There are deposits of minerals similar to those of Sweden and small but valuable reserves of nickel, pyrites, copper, lead, and zinc. The copper of Outokumpu and Pyhäsalmi are the most extensive deposit of its kind in Europe, but the nickel deposits near Petsamo were lost in 1945 when the area was ceded to the Soviet Union.

Until recently northern Finland extended to the shores of the Arctic Ocean, where the Finns had established the port of Petsamo (*R*: Pechenga). This port, with the narrow strip of land which joined it to the rest of the country, was annexed by the U.S.S.R., part of it after the "winter war" of 1939–1940 and part at the end of the Second World War in 1945. Apart from its mineral resources, this region was not of great economic value to Finland, and the port of Petsamo, to gain possession of which Finland had acquired this "Arctic Corridor" in 1920, remained in fact very

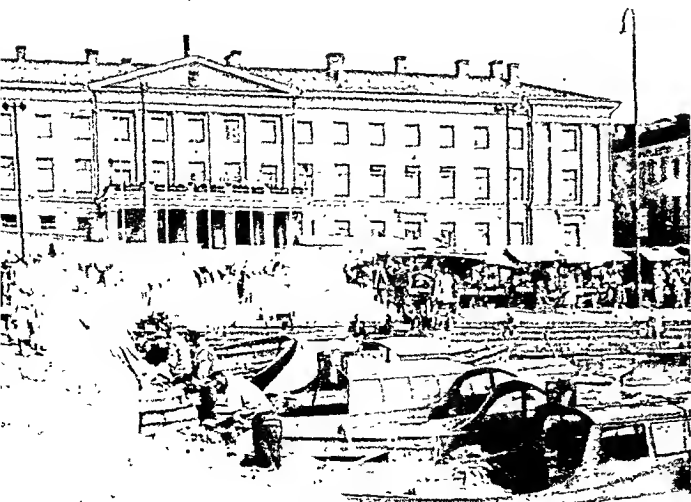
little used, and was linked with the rest of the country only by an all-weather road.

Central and northern Finland, like northern Sweden, is the pioneer region, where settlement and economic activity are expanding into the wilderness of tundra, forest, and lake. The harsh environment has called forth the best in the Finns. Centuries of effort have brought this waste into production and have enabled it to send its timber, its timber products, and its minerals into the world market.

COASTAL FINLAND

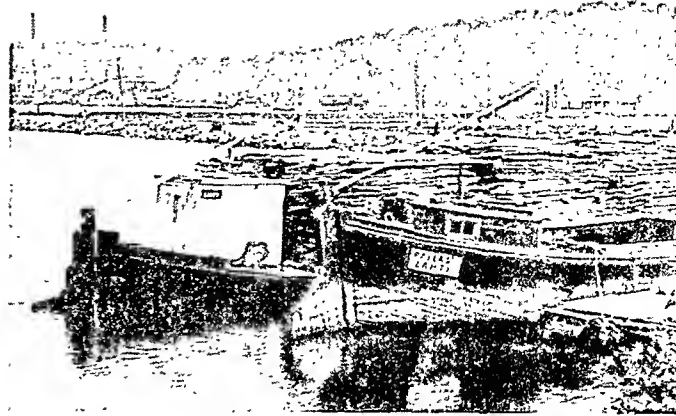
The central plateau, which lies at a height of about 300 feet above the level of the sea, drops gently through the narrow coastal belt to the shore of the Baltic Sea. This region, like much of the rest of the country, is covered with boulder clay but has patches of marine silt. The rivers, as they discharge from the lakes of the plateau, flow more swiftly, scouring their beds and deepening them to the underlying platform of ancient rock. The coast is deeply indented; forest-fringed creeks and inlets reach far into the land. Offshore is a "guard" of small islands, generally washed free of their boulder-clay cover by the sea.

The coastal belt had a similar forest cover to that of the interior, though much of this has been cleared, and this is now the most settled and best-cultivated region of Finland. Offshore, between the mainland of Finland and the Swedish coast,



Farmers often bring their produce to market in Helsinki by boat and even sell their goods directly from their boats. Overlooking this market scene is the presidential palace of Finland. (N. J. G. Pounds.)

The lakes and their connecting waterways are the most important means of transporting lumber. Here lumber is seen accumulating near Lahti at the southern end of the Päijänne lake system. (N. J. G. Pounds.)



are the Ahvenanmaa (*Sw*: Åland) Islands, a group of low, rocky islands between Finland and Sweden. Along the whole of the Finnish coast, from Viipuri (*R*: Vyborg; *Sw*: Viborg), now within the frontier of the U.S.S.R., to the head of the Gulf of Bothnia, colonies of Swedes settled, and extensive areas on the west and south coasts are today predominantly Swedish in speech.

Most of the larger settlements of Finland are almost entirely coastal. Of these Helsinki (477,000),¹ the capital, is the largest, lying partly on a peninsula, partly on the neighboring bay and islands. It is the most important port of Finland, but there are many lesser ports. Helsinki is but little impeded by ice in winter, and Hangö (*Fin*: Hanko), to the west, is open throughout the year. On the coast opposite the Åland Islands is Turku (*Sw*: Åbo, 131,000), a medieval fortress town and now a port and university city. Viipuri, once the second city of Finland and now, in Russian Karelia, grew up around a castle built by the Swedes in the Middle Ages. A short distance inland from Viipuri the Vuoksi River, draining the lake plateau of eastern Finland, descends from the higher level to that of Lake Ladoga by the Imatra Falls, one of the largest individual power resources in Finland.

The largest inland city in Finland is Tampere (*Sw*: Tammerfors, 133,000), 80 miles from the coast on the lake plateau. A textile industry was established here in the mid-nineteenth century, and the city has grown to be the largest textile manufacturing center in all Norden. Lahti (72,-

000), nestling against the northern face of the great terminal moraine at the southern end of Lake Päijänne, is the chief center of woodworking and furniture making.

POLITICAL AND ECONOMIC DEVELOPMENT

The republic of Finland appeared on the map of Europe after the First World War, when the Finns, with German help, revolted successfully against the rule of Russia. As a result of the two wars, ending, respectively, in 1940 and 1944, Finland lost to Russia, in addition to the Arctic coast and the port of Petsamo, a large area in the "waist" of Finland, the Karelian Isthmus, with the port of Viipuri and the Porkkala peninsula, near Helsinki, which has since been restored to Finland. These losses were more significant than their territorial extent would suggest. About 11 per cent of the cultivated land, about 13 per cent of the forest resources, a quarter of the pulpwood factories, and about 13 per cent of other timber factories passed into Russian hands. Altogether 342 industrial establishments were lost. Yet more serious was the effect of the territorial changes on the supply of electric power. In all, 32 per cent of the hydroelectric-power capacity under exploitation or in process of development was lost. Finland has no solid fuel except peat, so this loss was felt the more severely. With the loss of Viipuri, Finland lost a considerable part of her grain-milling and seed-crushing plants, as well as part of her small steel industry. Viipuri had also been one of the more important of Finland's ports, and was linked with the lake system of southern Finland by the Saimaa Canal, the

¹ Population figures are according to the 1963 census.

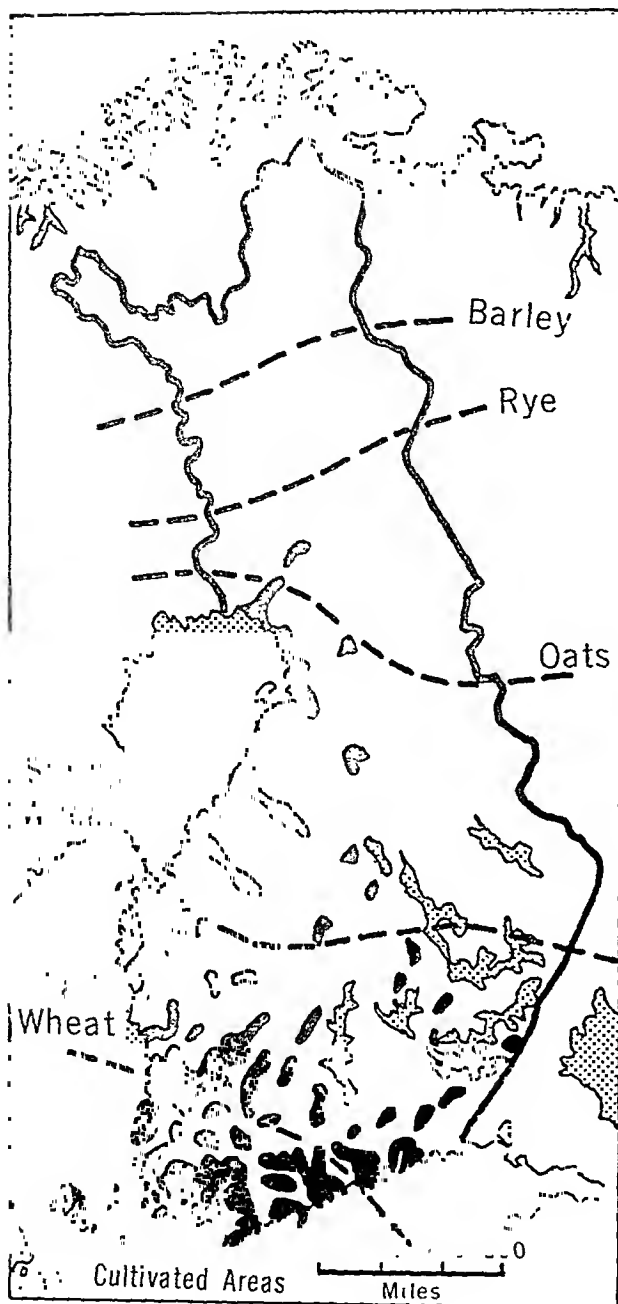


FIGURE 9-2. Cultivated areas and crop limits in Finland.

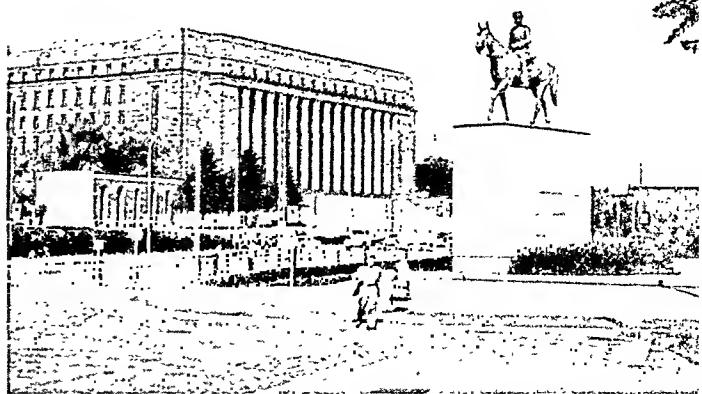
lower end of which now lies within the Soviet Union. Negotiations are now in progress to enable Finland again to use this outlet from the Lake Plateau to the Gulf of Finland.

Finland, furthermore, was burdened with a heavy reparation payment, which has since been discharged, and with about 480,000 refugees to be resettled in the parts of Finland that remain. Many of these were absorbed in agriculture, either

on "cold farms," created from the forest on the northern frontier of farming, or on "warm farms," formed by subdividing existing farms in the longer-settled areas. Others have gained employment in forestry or manufacturing industries.

The population of Finland is 4,523,000 (1963), of whom about 34 per cent are dependent upon agriculture. Finland lies upon the northern frontier of farming. Even in the most temperate region in

General Mannerheim, the soldier-hero of Finland, stands in front of the new parliament building, symbolizing the newly found nationhood of the Finns. (N. J. G. Pounds.)



the extreme southwest, the growing season is only about 175 days. Inland, this drops quickly to 140 in the latitude of the head of the Gulf of Bothnia. Crops can be grown over much of the southern two-thirds of Finland. Fall-sown wheat is cultivated in the southwest; spring-sown extends northward to the narrow "waist" of Finland. Oats have a similar limit, and hardy rye, barley, and potatoes extend yet farther (Fig. 9-2). But the greater part of all grain crops are grown in the narrow coastal belt of silt soil and relatively mild climate. Inland, the chief crops are fodder and grass for

the farm stock. Most farms have small dairy herds, and dairy products constitute an important export, despite the high cost of winter feeding the stock in large barns, like those of the American dairy belt.

Industries, other than the preparation of timber and the manufacture of timber products such as plywood, pulp, paper, and matches, are of small importance, though shipbuilding and light engineering have in recent years been expanded. Textiles and light metal goods are made, and Finland has even a small blast-furnace and steel

The most impressive view of Helsinki is from the ship as it approaches the city. In the center rises the dome of a Lutheran church. Below it, the presidential palace, the university, and government buildings line the waterfront.

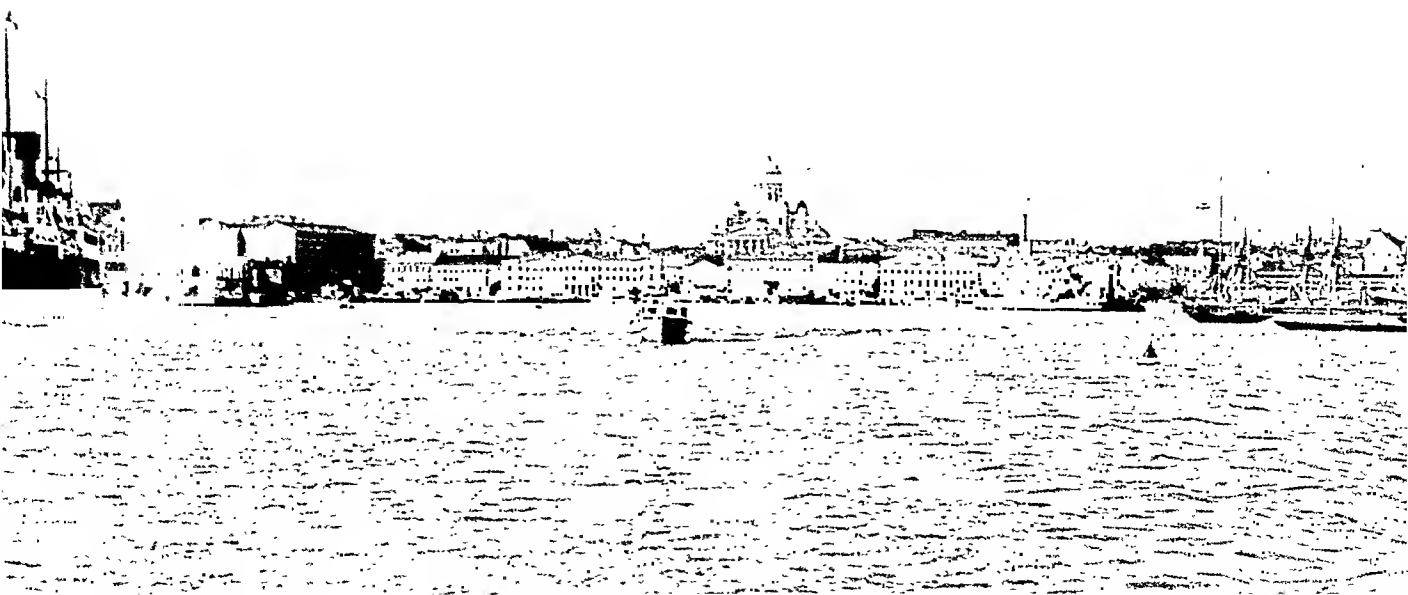


TABLE 9-1. Chief Elements in Finland's Foreign Trade, 1962 (In Millions of Markkaa)

Item	Imports	Exports
Food	39,716	10,927
Beverages and tobacco	5,081	29
Crude materials, inedible	28,711	113,405
Mineral fuels	38,201	95
Animal and vegetable oils and fats	828	299
Chemicals	33,925	3,678
Manufactured goods	87,393	136,432
Machinery and transport equipment	140,629	51,553
Miscellaneous manufactured articles	18,353	3,888
Miscellaneous transactions and commodities	29	5
	392,867	353,311

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1963.

industry. Hydroelectric power is generated from the rivers of the coastal belt, where they descend from the plateau of the interior to the sea. Turbines take form natural reservoirs, thus regulating the discharge of water. The exports of Finland consist overwhelmingly of timber and dairy products; but imports of manufactured goods, raw materials and such foodstuffs as she is unsuited to produce.

Despite its proximity to the Soviet Union, most of Finland's trade is with western Europe. In 1962, over a fifth of the exports were to the United Kingdom alone, and imports were mainly from the United Kingdom, West Germany, Sweden, and France. The Soviet Union accounts for only about 15 per cent of Finland's total trade.

Finland, like Turkey, is a bridge between West and East. Scandinavian in its moderation and its vigorous "social democracy," it is territorially part of eastern Europe. Its growth to political and economic maturity has been slowed down by a long period of Russian rule. It is still really "democracy in the making."

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Denmark

10

Denmark belongs geologically to the plain of north Germany, but from the point of view of history and culture, Denmark is Scandinavian. The Danish peninsula stretches about 250 miles northward from the German coast, and all except the southernmost third belongs to the kingdom of Denmark. East of the Danish peninsula and between it and the southern extremity of Sweden lies the Danish archipelago, a group of islands similar in relief and composition to the peninsula itself. Largest of these is Sjælland. Next in size comes Fyn (*G*: Fünen), then Lolland (or Laaland) and Falster. Fyn is separated from the Danish peninsula, known as Jylland, or Jutland, by the Little Belt. This waterway narrows to only half a mile and is spanned by a rail and road bridge. The Great Belt, between Fyn and Sjælland, is at its narrowest 14 miles wide, and the only means of crossing it is by ferryboat. The Sound lying between Sjælland and Sweden is 3 miles wide at its narrowest point and is also crossed only by ferryboats and hydrofoils.

Denmark is to a very large degree the creation of the Ice Age. During each of its major advances the ice sheet extended over the site of Denmark, but the last advance did not reach so far as its predecessors. The terminal moraine, which marked its maximum extent in north Germany, is continued

northwestward through Mecklenburg and Holstein and then northward through Schleswig (*Dan.* Slesvig) and Jutland. The moraine forms the backbone of the Danish peninsula and, with its related drumlins, comprises the highest hills in the country. These glacial deposits were laid down upon a land that was built mainly of chalk. This is almost everywhere deeply covered, and its nature is known only through borings that have occasionally been put down. Here and there, however, this "solid" geology comes to the surface and a chalk cliff breaks the monotony of the generally flat and featureless coast of Denmark. On the basis of the glacial deposits Denmark can be divided into western Jutland, eastern Jutland, and the islands.

WESTERN JUTLAND

The western half of the Jutland peninsula was covered only by the earlier glaciations. The moraines which were then laid down have been much eroded, and their remains have been surrounded and in part covered by the outwash of sand and gravel from the terminal moraine of the last glaciation. The surface of the land is undulating.

There is marsh on the lower ground, and the higher consists generally of porous and infertile sand. Western Jutland is thus a relatively unproductive region. Its population is sparser than that of eastern Jutland and the islands, farming is less intensive, and dairies are less frequent. There are relatively large areas of heath and swampy moor. Villages are few and small, and settlements here are on the whole more recent than in other parts of Denmark. The only exceptions lie in the extreme north and extreme south. The limit of the last glaciation curved to the west, so that northwestern Denmark was included and is now largely covered with a clay loam. In the southwest, fen peat has accumulated, and this, together with the deposits of clay that formed here, gives this small region a very much greater productivity than the rest of the west coast, though much is too wet for crop farming and is under permanent grass. In this region, grazing land and fodder crops are more important than elsewhere, bread crops less important, and yields per acre less than in other parts of Denmark.

Except in this southwestern area, the coast of Jutland has been smoothed by the current. Beach

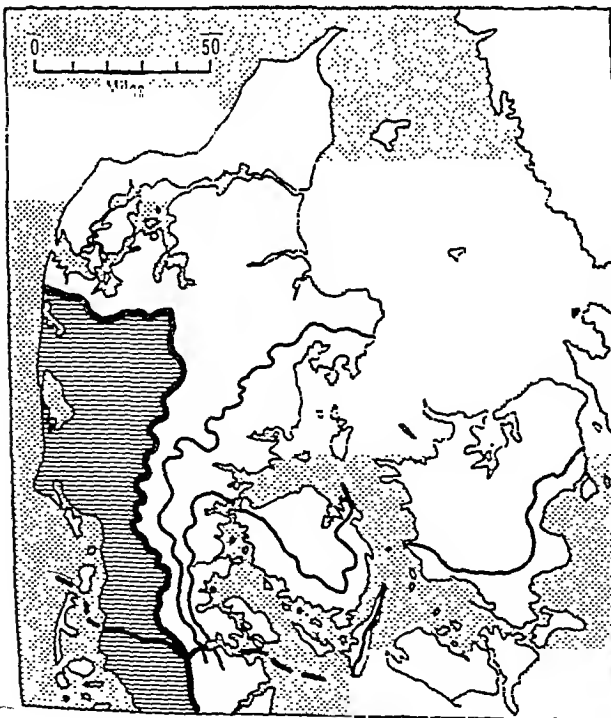


FIGURE 10-1. The principal physical divisions of Denmark. Heavy black lines indicate terminal moraines; the shaded area is made up of outwash sands and gravels.

deposits have been drawn out into spits which partially or completely close the openings, and throughout its length the westerly winds have piled up a wide belt of sand dunes. Esbjerg (55,000),¹ the only port on this coast, lies to the south of this belt of dunes and is protected by the sandy island of Fanö, which continues their direction southward. Esbjerg, established in the nineteenth century to handle the growing trade between Denmark and Britain, lies on one of the very few points along the coast where firm, dry land reaches right to the sea. Other towns in the region are few and small.

EASTERN JUTLAND

Eastern Jutland is little different in relief from west, but the difference of soil has resulted in a different pattern of land use and a denser population. Within the limit of the terminal moraine is a hummocky area of ground moraine. The valleys are frequently marshy, and patches of infertile sand occur, but the region as a whole is covered with a productive clay or clay loam. In contrast to the western region the land here is almost wholly under the plow or used as permanent grazing. Villages are larger and more closely spaced. Dairies are more numerous, and there is a large number of small market towns. Western Jutland is exposed to westerly winds. It is a bleak and unfriendly region. Trees are few and frequently bent by the strength of the wind. Eastern Jutland has the luscious appearance of the English Midlands. Its small fields are surrounded by hedges, with hedgerow trees and small wood lots. The settlement pattern of Jutland as a whole has undergone a marked change in modern times. The earlier pattern was one of large and compact villages, each surrounded by its cultivated fields. In modern times settlement has become more dispersed. As land reform divided the open fields and allocated to each farmer a compact holding, he tended to leave the village and live in a sep-

arate farmstead on his land. The settlement pattern of Denmark is still in process of changing from one of large villages to one consisting mainly of scattered farms.

There are many small towns in eastern Denmark. With the exception of Århus (120,000) on the east coast and Ålborg (86,000), on the Lim Fiord, few have more than 30,000 inhabitants. They are market towns, and their primary purpose is to serve the requirements of the rural areas in which they lie.

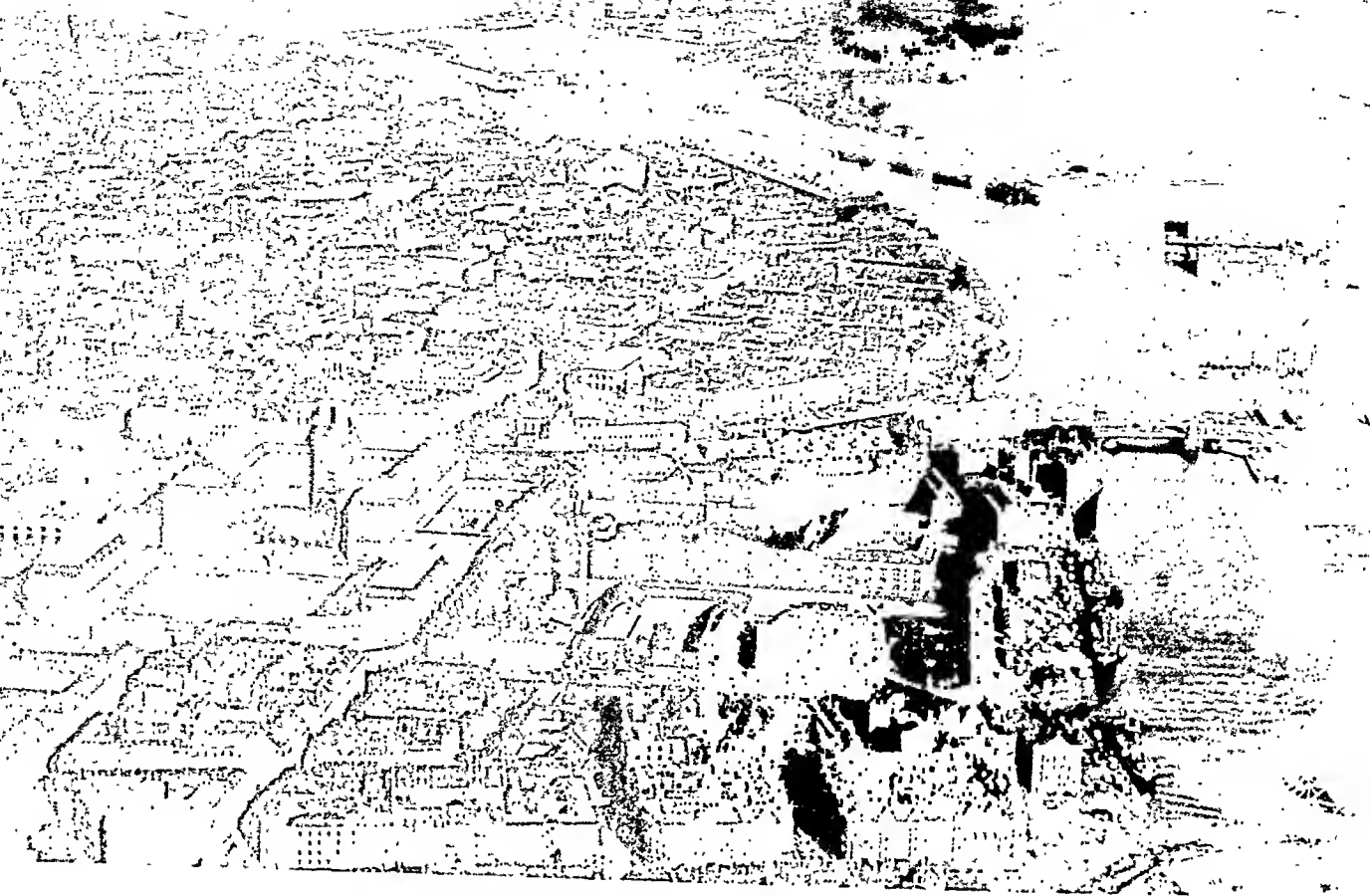
The east coast of Jutland, in contrast to the west, is irregular in the extreme. The rise in sea level which has followed the retreat of the glaciers has drowned the coast, and there has been no strong current on this side, as there is on the west, to smooth out the irregularities. The deep inlets of the coast have gentle slopes, and at the heads of the larger are small ports, whose functions are now gradually passing to Copenhagen (*Dan*: København) and Esbjerg.

The climate of Jutland is similar in many respects to that of northern England but is less modified by the proximity of the Atlantic Ocean. Winters are a little more severe; summers a little hotter. The western coast is ice-free, but ice may form in winter over the sea between the islands of the archipelago. Denmark lies climatically on the borders of two regions, one with a winter rainfall maximum and one with a summer maximum. Precipitation is well distributed and is over 20 inches in most places and sometimes over 30 inches.

THE DANISH ISLANDS

The Danish islands are, with the exception of Bornholm, composed entirely of ground moraine, and their strongest relief is formed by the sinuous ridges of terminal moraine left by the ice sheet at various stages in its retreat. The soil is almost wholly composed of a clay loam. The landscape resembles that of eastern Jutland but is generally somewhat lower and less undulating. The islands of Sjælland, Fyn, Lolland, and Falster are almost wholly under cultivation. Their soil is among the most productive in Denmark and is mainly under

¹ The population in 1960 is given for all cities of over 50,000.



Copenhagen, the "Merchants' Haven," grew up on the narrow, sheltered waterway between the Danish island of Sjælland and the small island of Amager (to the right). Docks today line the waterfront. In the left foreground is the royal palace. (Aerofilms.)

crops. Wheat, barley, and sugar beets here take precedence over permanent grass.

The islands are irregular in shape and deeply indented. Fyn is linked with Jutland, and Sjælland with Lolland, Falster, and Möen, by bridges which carry generally both road and rail traffic. There are a number of small ports and market towns. The largest of these is Odense (111,000) in Fyn. The more easterly islands are dominated by Copenhagen, a city with a population of 924,000. This is the only really large city in Denmark. It lies on the eastern shore of Sjælland, opposite Sweden. This unusual position for a capital city is to be explained in part in terms of the former extension of Denmark into the present territory of Sweden. A natural harbor was formed in the waterway which separated Sjælland from the small island of Amager, and the situation was one which commanded the Sound and the entrance to the Baltic. The prosperity of Copenhagen was firmly based in

the Middle Ages on its control of Baltic shipping and on the trade of its merchants in the skins, furs, and metals of the Baltic region. Copenhagen still has an important entrepôt trade as well as handling a large part of the foreign trade of Denmark itself. Copenhagen handles much of the import trade in raw materials and has, partly as a result of this fact, built up a wide range of manufacturing industries. It is by far the most important industrial center of Denmark and has engineering, pottery, chemical, textile, and food-stuff industries as well as its famed breweries.

The island of Bornholm lies 120 miles to the east of Falster and closer to the Swedish than to the Danish coast. It differs from the rest of Denmark in being composed very largely of ancient granites, over which was spread only a thin and discontinuous layer of boulder clay. The islands is devoted to agriculture except in the north, where rather rugged granitic uplands occur. The coasts

are steep and straight and offer little refuge from the sea.

ECONOMIC POLICY

Agriculture is the chief industry of Denmark, though the quality of neither the soil nor the climate has greatly encouraged the developments which have taken place in recent years. An enlightened governmental policy encouraged Danish agriculture to break away from its medieval restrictions. Before the end of the eighteenth century most of the peasants owned compact holdings and enjoyed a security of tenure sufficient to encourage them to make improvements. The Danish government in the eighteenth century even planted trees as windbreaks in an attempt to cultivate and develop the exposed western coast of Jutland. During the nineteenth century technical improvements were continually being made, but the basis of Danish agriculture continued to be the cultivation of grain. The change from a grain husbandry to a livestock husbandry came in the second half of the nineteenth century. The price of grain in the world market collapsed owing to the cheap

import from the New World. Instead of protecting her agriculture by tariffs, Denmark introduced an intensive dairy farming, feeding the cattle on grain, roots, and other fodder crops grown in the country. Supplementary grain, purchased cheaply in the "new" countries, was admitted to feed the stock and, when they became available later, oilseed cake and other feeds were also imported.

The expansion of the Danish dairy industry was closely associated with the growth of the cooperative movement. Beginning in the late nineteenth century, a large number of cooperative dairies was constructed. They are owned by the farmers themselves and have proved so successful that they now handle almost all the Danish output of dairy products. Liquid milk is sent from each farm to its nearest dairy; the cream is separated, and skim milk returned to the farmer to be used as a pig feed. Pigs are also killed and cured at cooperative slaughterhouses. The farmer is thus freed from all obligations except those of rearing and tending his animals and growing fodder crops. The dairies are responsible for maintaining the quality of the milk, cream, butter, and cheese produced, and for marketing them.

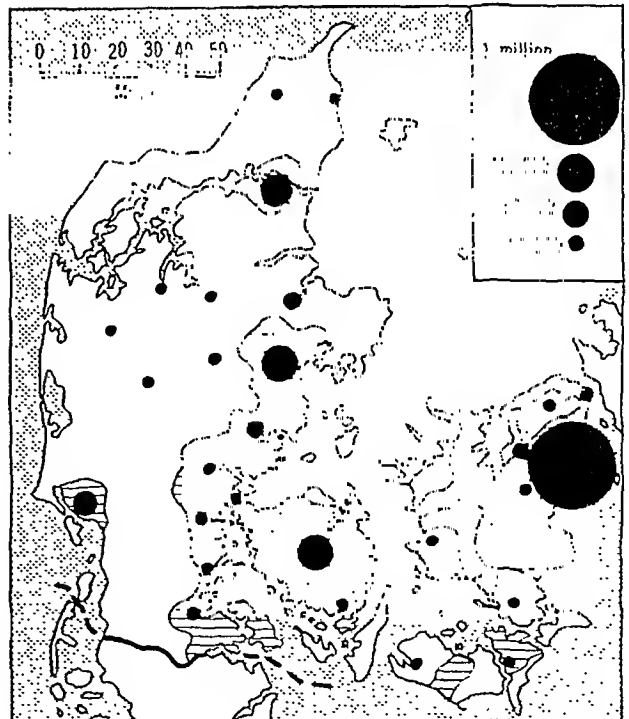


FIGURE 10-2. Distribution of population and cities in Denmark; shaded areas have over 250 persons per square mile.

cheese, and eggs, for which Denmark usually enters into long-term contracts with the governments of other countries. Before the Second World War animal products accounted for no less than about 70 per cent of the total exports. Denmark is always faced with the problem of securing a market for these commodities. Great Britain and Germany have been in the past the most important consumers of Danish produce, but Denmark cannot be certain that either will be as important in the future as in the past, and watches, not without anxiety, the development of the Common Market.

The Faeroe Islands, lying nearly 400 miles out into the Atlantic from the coast of Norway, constitute a "self-governing community within the State of Denmark." They are a group of over 20 islands, with an area of 540 square miles and a population of 34,600. The inhabitants, like those of Iceland, are of Norse descent. The islands are rocky, the climate is mild but very wet, and the chief occupations of their inhabitants are sheep rearing and fishing. Greenland is also part of the Danish state and is represented in the Danish parliament.

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part three

Western Europe

Introduction to Western Europe

11

Western Europe is less easy to define than northern. It embraces the British Isles and France. It is difficult to exclude Belgium, Luxembourg, and the Netherlands, but these are closely linked in their economic life with the Rhineland, the Ruhr, and much of western Germany. Yet Germany as a whole cannot be considered as belonging to western Europe. If we consider in greater detail what characterizes the areas which are without dispute in western Europe, we may be able to define its limits more clearly.

From the physical point of view, western Europe is marked by a varied terrain. There are no large, homogeneous regions, nothing resembling the prairies or the Russian steppes. The western European countries can be divided into small compartments or regions, some of which can be crossed on foot in a day. Each has an individuality, and often each is more or less specialized in its productive activities. The French know these regions as *pays*. They have no generic name in Great Britain, but their reality is apparent to all who have studied the British Isles at first hand. Most of these small regions derive their individuality from their soil or relief. They may be on limestone or chalk or clay. The important feature is variety of resource and of structure within comparatively small areas.

in part from its association with the Roman Empire. Gaul, corresponding roughly with France, was conquered by Julius Caesar in the middle years of the first century B.C. He extended his frontier to the Rhine. Subsequent attempts by the Romans to advance farther to the east and to absorb western Germany into their Empire were defeated, and Roman civilization did not spread deeply into what the Romans knew, and we ourselves know, as "Germany." However, Julius Caesar led a brief raid into Britain, and this was followed up in A.D. 43 by a carefully planned conquest. The Roman conquest of Britain extended northward to the Scottish border. An invasion of Scotland was repulsed, and Ireland was ignored.

The Romans left in the area which they had conquered a legacy of good roads and well-planned cities and a tradition of law, order, and good government. Throughout western Europe there are today the visible evidences of Roman occupation, from the south of France to the wall built by the Emperor Hadrian across the north of Britain to hold back the barbaric Picts and Scots. Much of the moral, as well as of the material, benefits of Roman civilization were lost, but western Europe retained through the Middle Ages and following centuries a distinct advantage over lands not favored by the civilizing hand of Rome.

This early development of the west manifested itself during the Middle Ages in the development of trade and the revival of urban life. The spirit of nationality developed earlier in England, France, Switzerland, and the Netherlands than in lands lying farther to the east. A middle class, enterprising and commercial-minded, arose, and the feudal structure of the Middle Ages yielded more rapidly in the west. Tradition lay less heavily on the agriculture and industry of the area. Change and technical progress opened the way to specialization and trade, and these to higher living standards.

Progress was far from being regular. Some areas, particularly highland regions difficult of access, lagged behind. But over the good lands of England the open fields of medieval agriculture

were giving place to enclosed. As early as the sixteenth century an English rhyming textbook on agriculture stated that:

*"More profit is quieter found
(where pastures in severall bee);
Of one seelie aker of ground
Than champion maketh of three."*

In the eighteenth century a four-course crop rotation was introduced. Animal breeding achieved great success, and sheep, cattle, and swine were bred for specific purposes, such as meat or milk or fleece. Agricultural reforms were also achieved early in Flanders and other parts of the Low Countries. They were slower to appear in France, and except in the north, little progress was made before the French Revolution. But the agricultural progress of all western Europe was ahead of that of central and eastern.

It was the advance of western Europe in mechanical invention that was most marked. In most aspects of technology Great Britain was the most developed. Her wealth of easily worked coal, the existence of iron ore, and the great age of simple steelmaking practices gave Great Britain an advantage. Before the middle of the eighteenth century a form of steam engine had been invented and was applied to pumping water from the tin mines of Cornwall and the coal mines of the English Midlands. About the same time the process of making coke by heating coal and of using coke instead of charcoal in the blast furnace increased the scope of the iron industry. The puddling furnace for steelmaking was introduced toward the end of the century. The hot blast was introduced into the blast furnace about 1831. Crucible steel of high and uniform quality was invented and used for springs and the fine moving parts of machines. In the nineteenth century the Bessemer process for the large-scale and rapid manufacture of steel, and the Thomas, or basic, process, which permitted phosphoric ores to be used, were perfected in England and spread eastward through the continent of Europe.

In the sphere of textile manufacture, the west of Europe led the advance in technical progress. Improved spinning and weaving machines for cot-

ton, wool, and silk; the stocking loom; and the Jacquard loom, which wove patterns into the cloth, were invented.

These developments in western Europe, and chiefly in Great Britain, brought specialization, trade, and wealth. They reacted upon other industries, encouraging the production of chemicals and dyestuffs. The growing industrial and urban population placed heavy demands on agriculture, which became increasingly efficient, while at the same time an even greater import of foodstuffs was necessary from overseas.

In the forefront of this industrial development stood Great Britain, but rivaling Great Britain were Belgium and France. Germany, which subsequently became the greatest industrial country of the continent of Europe, was later in developing. Its industry was organized on a craft basis until well into the nineteenth century. King Frederick the Great of Prussia encouraged the development of the Silesian industrial area in the eighteenth century, but the Ruhr did not really develop until after 1850. Luxembourg and Lorraine did not become of great importance as iron and steel producers until the last two decades of the nineteenth century.

A large and specialized industrial output, combined with high standards of living, have made the nations of western Europe the most important in commerce of any. They have large merchant marines; their overseas trade developed early and led in turn to the foundation of colonial empires. Though the English have migrated in considerable numbers, this has not really been due—as, for example, the migration from Italy and the countries of eastern Europe—to overpopulation at home. The French, Belgians, and Dutch have emigrated and settled to only a small degree. The western European peoples have formed what the French call *colonies d'exploitation*, not *colonies de peuplement*, commercial colonies, not colonies for settlement. Uninterrupted access to raw materials and markets, and secure control of the ocean routes have been their objects. The former Dutch empire in the East Indies and the late empire of Great Britain in India both sprang from

semiprivate commercial undertakings, the Dutch and British East India Companies. Much of Britain's imperial activity in Africa was conducted under the guise of commercial companies, the British South African Company, the Royal Niger Company, and so on. The Belgian empire in the Congo was first the sphere of the semiprivate Congo Association.

The countries of western Europe owed their high living standards to this industrial specialization and trade. Trade and markets were their life-blood. By this means they built up overseas investments, the interest on which has helped very materially to balance their trade. They have merchant navies which carry their own exports and imports and earn foreign currency by carrying also for others. Great Britain, France, Belgium, and the Netherlands all earn considerable sums in this way. In the nineteenth century they could sell wherever they willed. In the twentieth they are finding increasing competition. Pakistanis and Indians, Brazilians and Egyptians have proved apt pupils, and they too look for the fruits of industrialization in better living standards and greater wealth. The competitive position of the west European countries has deteriorated, and two world wars within a generation have added to their difficulties. France, with the strongest agriculture and the best economic balance, feels the difficulties least. Great Britain, which had given economic hostages as no other country had done, sometimes faces serious economic difficulties.

The West has lost its supremacy in the economics and politics of the world, but it cannot lose, except by the destruction of a third war. the advantages which it derives from its long cultural history. Those who succeed to the world position held by western Europe will, it is to be hoped, learn from it the art of living.

*"Graecia capta ferum victorem cepit et
artis intulit agresti Latio. . . ."*¹

¹ Horace, *Epistles*, Book II, No. 1. The lines may be translated: "Captive Greece captured her rough conqueror, and gave to Latium [Rome] her arts."

Thus it seemed desirable to the author to draw the eastern limit of western Europe along the frontier of the Netherlands, Belgium, Luxembourg, and France. Germany has the western qualities, though in a smaller degree, and eastern Germany can hardly be said to have them all. Switzerland bridges western and central Europe. Its possession

of a large French minority, political maturity, developed industry, and generally high standards of living separate it from its neighbor, Austria. Nevertheless, its ties are close with Germany, in language, culture, economy, and history, and it seemed desirable to include Switzerland, along with Austria, in central Europe.

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The British Isles

12

The British Isles are a group of islands, two of considerable size, the rest small, lying close to the mainland of northwestern Europe. The total area is only about 121,000 square miles, less than that of New Mexico. The two major islands have an indented coastline, and many estuaries and bays carry the sea far into the land. No place is more than about 70 miles from the sea. In relation to the physical divisions of Europe outlined in the first chapter (pages 5 to 10), the British Isles embrace part of the low-lying plain of northern Europe and part of its highland margin to the northwest. Climatically the British Isles lie in the moist, cool, temperate area. Their temperature range is small. The winters are cool, though rarely cold, and summers are seldom hot. Rain occurs at all seasons and, except in the west, regularly amounts to more than 30 inches a year.

The most significant division of the British Isles is into a Highland Zone and a Lowland Zone, the former being part of the mountainous region of the extreme northwest of Europe, the latter of the European Plain. The line of division between them extends from the coast of southwest England, near the mouth of the river Exe, northward to the northeast coast, near the mouth of the Tees. The line separates the southwestern peninsula and the whole of

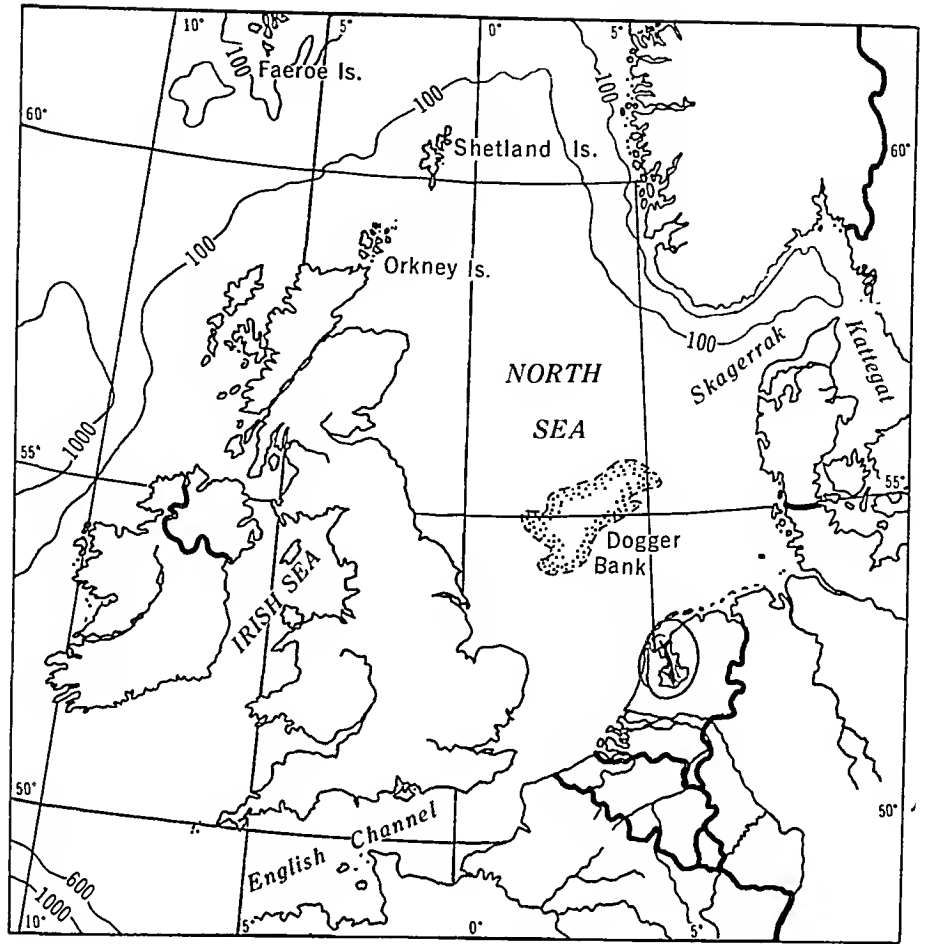


FIGURE 12-1. Britain and the British seas.

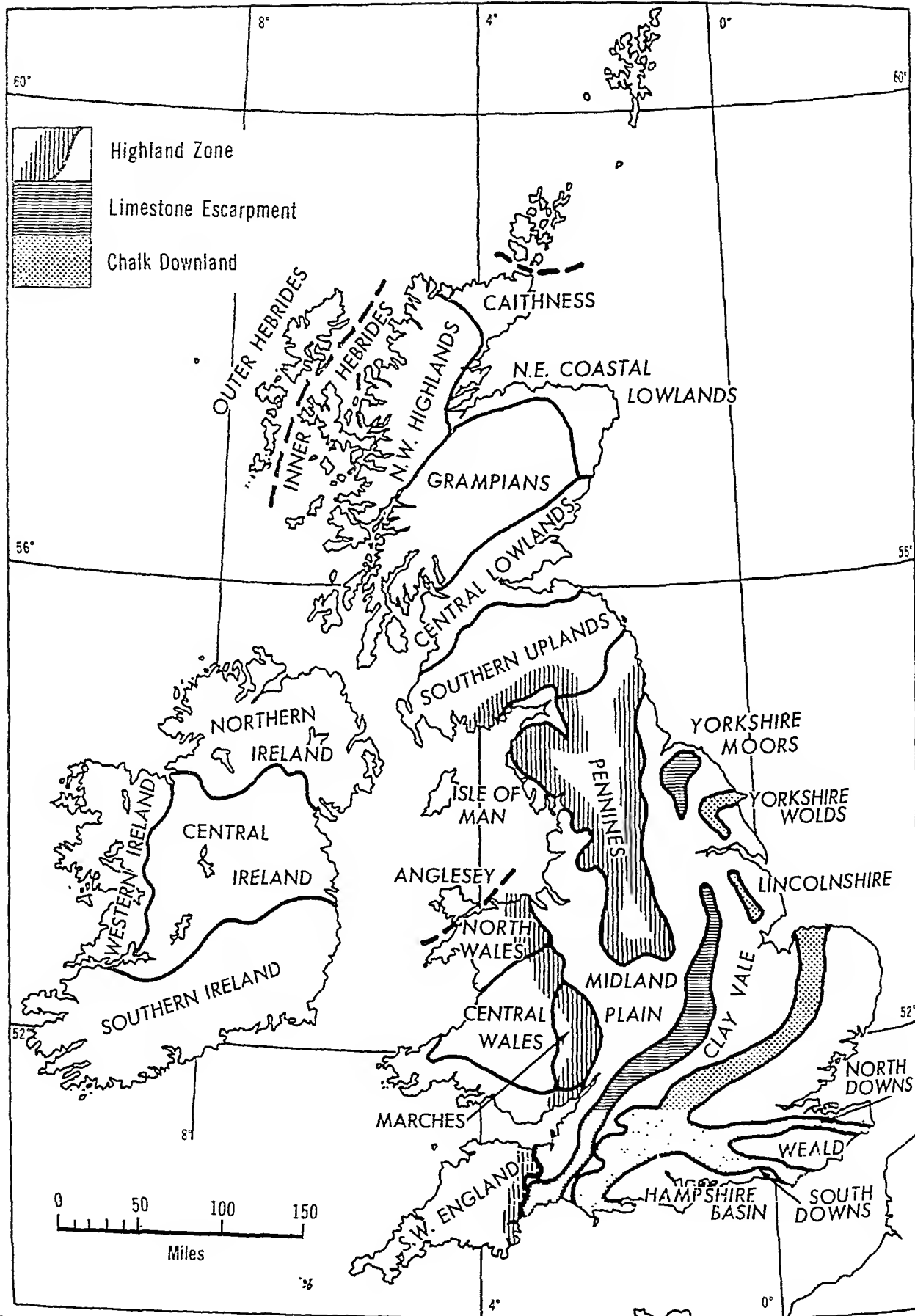
Wales from the English Plain; and the hills of northern England, the Pennines, and the whole of Scotland and Ireland lie on the Highland side of the line (Fig. 12-2).

The Highland Zone is thus broken into four major divisions by the sea: the southwest, Wales, northern England and Scotland, and Ireland. All are composed in large measure of old, hard rocks, resistant to erosion and yielding only a shallow and often infertile soil. The rocks of the Highland Zone have, however, been exposed to erosion for a very long period of time. The hills are not high. Snowdon, the highest mountain in Wales, reaches only 3,560 feet. The hills of northern England are even lower, and in Scotland Ben Nevis is only 4,406 feet. The mountains of Ireland are not so high as those of Scotland. All these mountains appear, however, to be higher and more impressive

than they really are because they rise from near sea level and not from an area of plateau as do many of the higher mountains in North America.

During the long period of erosion to which this region has been subjected, valleys have been widened and gaps enlarged. The Highland Zone consists now rather of a large number of compact areas of hill, easily entered and yet more easily bypassed by means of the valleys and gaps that surround and penetrate them. Within the zone are extensive areas of lowland, such as the plain which occupies central Ireland and the Lowlands which separate the southern Uplands of Scotland from the Grampians. Anglesey, an island off the coast of Wales, is low and almost flat. Southwest England has few areas which are higher above sea level than the plains of Illinois.

All the Highland Zone, except southwest Eng-



land and South Wales, was covered by the ice during the Ice Age. The great ice sheet had the effects of smoothing and rounding the surface features of the land, of diverting rivers, and of creating lakes. In very few areas—chiefly in north Wales, the Grampians, and the northwest Highlands—has the ice fretted and etched the land into truly alpine forms, with steep precipices and sharp *arêtes* and peaks.

The Lowland Zone, by contrast, is built up of softer rocks. Limestone, sandstone, and clay alternate at the surface and are responsible for the major contrasts in relief in this subdued topography. Limestone extends from southwest to northeast across the plain, giving rise to the low, rounded hills of the limestone belt (Fig. 12-2). The chalk similarly produces an area of rolling hills. But most of Lowland England is a rich plain, sheltered, fertile, and densely peopled.

In the Midland Plain are several small inliers of the harder rock which composes the Highland Zone, like islands of the older land surrounded by a sea of younger and softer rocks. These "islands" are of no great altitude, but their different composition from that of the surrounding plain shows itself in their poorer soils and less-well-developed agriculture.

The line which separates Highland from Lowland is not only important for the sharp break in the topography. It is a line along which coal measures occur. The geological deposits in which the seams of coal are found formerly extended over large parts of the Highland Zone but have been stripped away by erosion. Along the margins of the Highland Zone the coal measures have in parts been preserved, and, locally at least, they dip away underneath the Lowland Plain.

CLIMATE

The British Isles lie in the moist, temperate region of northwest Europe. The main features of this climate have already been reviewed (pages 25 and

26). The weather of the British Isles is changeable. Depressions move in from the Atlantic, bringing with them a sequence of weather types. The approach of the depression is marked by southwest winds and mild, cloudy, and often wet conditions. As the depression passes, the wind changes to northwest, bringing cooler and drier conditions. Despite the frequent changes in English weather, certain constant climatic characteristics may be noted.

Nowhere in the British Isles does the monthly average temperature exceed 65° or fall below 37° . Except on the high ground of the north, it is rare for the thermometer to remain below freezing point for more than a day or two. In winter the influence of the westerly winds is paramount. These have come directly off the warm waters of the Atlantic Ocean. The winter isotherms tend to run, in consequence, from north to south (Fig. 12-3*a*). The 40° isotherm runs close to and parallel with the west coast of Scotland, crosses Wales, and cuts off the southwestern peninsula. Lowest temperatures are experienced in the more easterly parts of the Scottish Highlands and in the eastern Midlands and East Anglia. In Ireland, only in the center and northeast does the temperature fall below 40° . This mildness of the winters of western Britain has become almost proverbial, and the southwest of Ireland and Cornwall are well known for their almost subtropical vegetation.

In summer, on the other hand, the influence of direct insolation is more apparent (Fig. 12-3*b*). Coastal areas are, in general, cooler than inland areas in the same latitude, but the south shows very much higher temperatures than the north. The greatest summer temperatures are usually recorded in the south Midlands and in the London area.

Rainfall is heaviest over the area which has been defined already as the Highland Zone (Fig. 12-4). A rainfall of over 80 inches occurs in parts of this area, and most of it has over 40

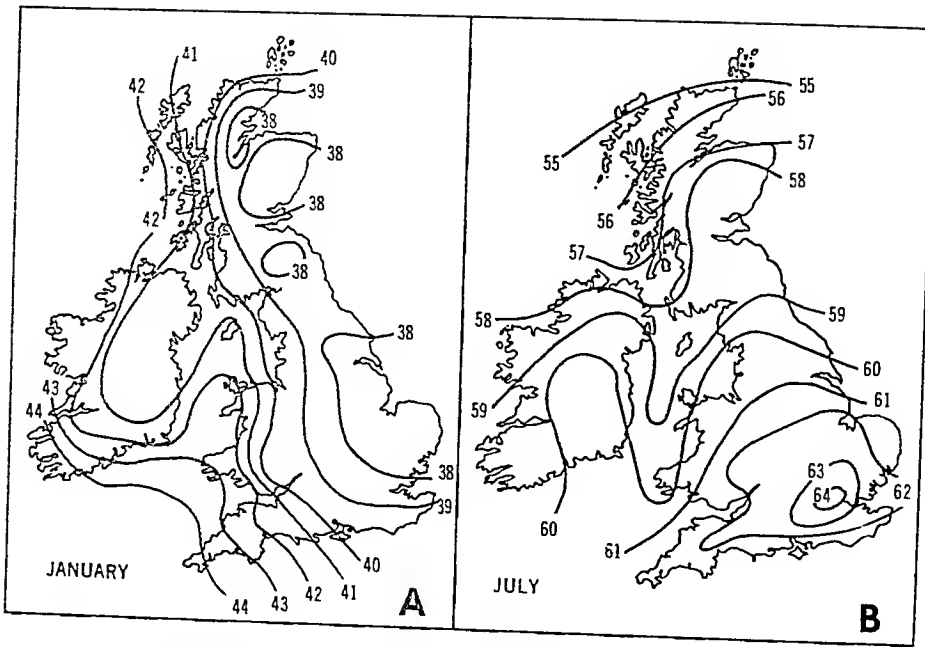


FIGURE 12-3. British Isles: average temperatures in (a) January, (b) July.

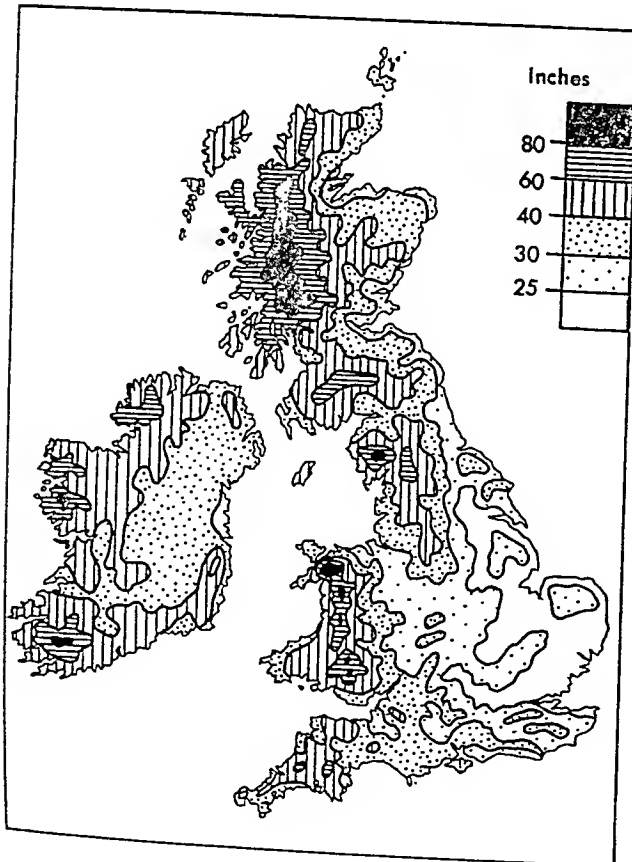


FIGURE 12-4. British Isles: average annual rainfall.

inches a year. The precipitation diminishes in the central plain of Ireland and along the eastern coast of Scotland, where, locally, the fall is less than 25 inches. Over Lowland England, the rainfall is always under 40 inches and in much of the area is less than 30 inches. Humidity is generally high. This leads to the formation of fog. Fog forms in valleys on cool, still nights, and in winter is likely to blanket cities and even counties and to bring all movement almost to a stop. Sea fogs occur around the coast, with sometimes disastrous consequences for shipping.

With a relief as varied as that of the British Isles there are necessarily many local features and accidents of climate. Every city in some degree creates its own climate. In the still conditions of anticyclonic weather, the cold night air concentrates in hollows and valleys, where fog and sometimes frost occur. It is usual not to plant tender crops, like the early potatoes of the southwest, in the bottoms of valleys. In such frost hollows, night temperatures are sometimes recorded as low as those of a continental winter.

RIVERS AND THE SEA

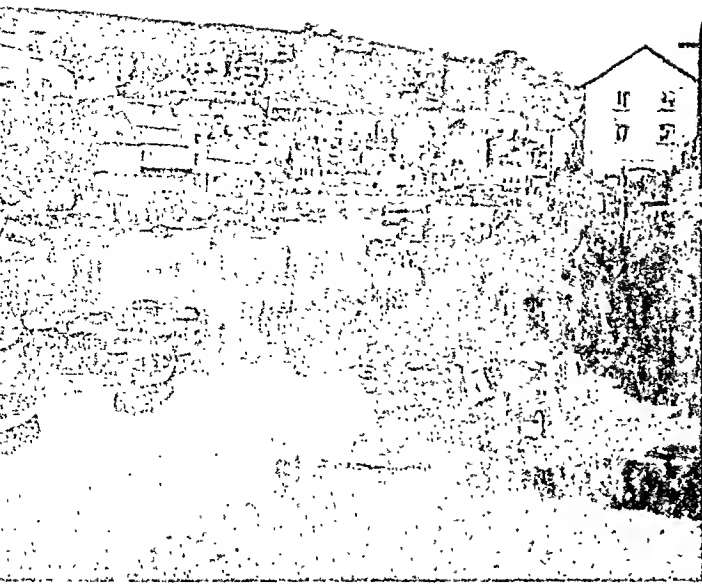
The heavy rainfall of the British Isles is carried to the sea by a multitude of rivers, few of them of a greater length than 50 miles, most of them so small as to be of no value for commercial navigation, almost all snaking their way through lush meadowland bordered by willows and serving at most to water the crops or to provide a harvest of trout. In parts of Scotland, the rivers descend from a greater height. They are swifter, cascading over rocks and babbling through shallows, clean and sparkling, while the rivers of the plain are heavy with the silt which they will lay upon the sea floor to build up new land.

Three rivers, each of considerable size by British standards, drain the Midlands. The Severn, after a circuitous course in Wales, turns eastward and then, diverted southward by the ice sheet, broadens into the Bristol Channel. The second Midland river is the Trent, which rises in the southwestern valleys of the Pennines and receives

tributaries from the Midlands before turning northward to mingle its waters with the Yorkshire rivers in the Humber. Lastly, the Thames flows from the Cotswolds, passing Oxford and the Chilterns, to London. The four "Wash" rivers, Witham, Welland, Nene, and Great Ouse (so called to distinguish it from the Yorkshire and Sussex rivers of the same name), drain substantial areas of the east Midlands and discharge into the shallows and rapidly silting opening of the Wash. The east, the south, and the west are drained only by numerous short rivers. Much of the drainage of Wales is eastward by the Dee, the Severn and the Wye and then either southward to the Bristol Channel or northward to the Irish Sea. Only the Yorkshire Ouse has any pretensions to being an integrated and developed river system. It gathers together some half dozen Yorkshire rivers, which once had straight courses eastward to the sea, and discharges their waters into the Humber.

The rivers of the Scottish Highlands tend to follow the northeast-to-southwest grain of the country. Only in the central Lowland area do these rivers assume any considerable size. The Tay and the Forth, which rise in the Highlands and flow southeastward into the Lowlands, are not long, but they are broad and navigable in their lower courses and thus of considerable economic importance. The Clyde, which discharges to the west, rises in the southern Uplands. The Scottish rivers are, with the exception of the three just mentioned, of negligible value for navigation. They are potentially a source of hydroelectric power, and some have been dammed and have had installations erected. But most are valued chiefly for the wild beauty of their valleys and the trout and salmon which live in their waters. The Tweed rises near the source of the Clyde, in the southern Uplands, but flows eastward to the North Sea, near Berwick. In its lower course it flows through a broad plain, the Merse, which constitutes one of the more important agricultural regions of Scotland. For its last 20 miles it is the traditional boundary between England and Scotland.

Ireland has one river of great length, the Shan-



Along the "drowned" coastline of western Britain long branches of the sea run far inland, taking the tide inland to little decayed ports, such as Looe, in Cornwall, shown in this photograph. (N. J. G. Pounds.)

non, the longest river in the British Isles. This has gathered the drainage of most of the central plain. Only a few short rivers drain the mountain fringe.

No general review of the British Isles is complete without some reference to the British seas, which have had an influence on every aspect of British development. The sea has served "as a moat defensive to a house" to protect the British Isles from invasion. This added security has permitted a more gradual and continuous development of political and economic institutions than has occurred on the continent of Europe. The 20 miles of sea have given Great Britain a certain degree of aloofness from the affairs of continental Europe. This attitude is unrealistic, and has for long been breaking down. It nevertheless comes as something of a shock to some Britons to learn that within a few years their island may be linked by road or rail with the continent to which they had scarcely thought of themselves as belonging.

The proximity of the sea to every part of the British Isles has encouraged foreign trade. The estuaries of the rivers, running deep into the country, have permitted the growth of ports close to the inland centers of industrial activity. The sea provides the medium for the fishing industry, which is significant from the points of view both of the numbers employed and of its contribution to the nation's food supply. The sea, lastly, brings

the warm North Atlantic Drift to warm the shores, to keep them free from ice, and to ameliorate the winds that blow eastward over Europe.

The North Sea is shallow. In its midst is the Dogger Bank, probably an accumulation of glacial material. Here fish breed in great numbers, and shallow water provides conditions suitable for trawling, which is practiced from the east coast ports of Hull, Grimsby, and Yarmouth. The North Channel, Irish Sea, and Saint George Channel, which separate England and Wales from Ireland, are narrower and deeper. Their floor is more uneven, and fishing less important. From 50 to 100 miles west of Ireland and northwest Scotland, the Continental Shelf ends; the sea floor steepens and sinks to the deep-sea floor of the North Atlantic.

All parts of the British coast are tidal (see page 15). The tidal range is as much as 40 feet in the Severn. The sea level rises and falls twice in a day, but at Southampton there is a complex double tide which has facilitated the movement of great liners in and out of this port. The tide ran formerly a considerable distance up each river, but its progress is now checked by a lock some distance above the mouth. The tidal movement is sufficient to keep the estuaries of rivers fairly clear of sediment. Silting nevertheless occurs along the coast of the Thames, Severn, and Humber estuaries and of the Wash, the joint estuary of a number of east Midland rivers, and here the

land is gaining slowly at the expense of the sea. In most other places, however, the sea is battering the cliffs and slowly eating into the land. The losses on the coasts of East Anglia and of Yorkshire have been quite spectacular within historical times.

Highland Zone

SCOTLAND

Scotland belongs wholly to the Highland Zone. It is, compared with England, a rough, infertile region, much of it thinly populated. The country consists of a mountainous region, occupying over half of the total area, known as the "Highlands." South of this is an east-west belt of lower land, commonly called the "central Lowlands," and south of this again another region of higher elevation and rougher terrain, known as the "southern Uplands."

The Islands. Off the west and north coasts are a number of island groups, the Shetland and Orkney Islands, and the Inner and Outer Hebrides. They are complex and irregular in their geographical pattern. The land surface is generally low and undulating, and areas of bare or almost bare rock alternate with glacial deposits and peat bogs. The winds are strong and exercise a predominating influence on the location of settlement, and trees are rare except in sheltered hollows. Rainfall is heavy, and the soil is podsollic and infertile. A small and now steadily diminishing population scrapes out a meager but picturesque existence, growing potatoes, oats, and other hardy crops, fishing, and spinning and weaving the wool of the local sheep into heavy tweed cloth.

The Shetland Islands are the most exposed and most northerly group. Here and in the Orkney Islands, which lie within sight of the Scottish coast, there is a strong Scandinavian influence, both in the physical makeup of the people and in their folklore and tradition. The Orkney Islands have derived some importance from the fact that Scapa Flow, a stretch of sea almost completely

surrounded by the islands of the Orkney group, has for many years been used as a base by the Royal Navy. Lewis, with its southern extension Harris, is the largest island of the Outer Hebrides. Its chief town, Stornoway, is a small fishing port.

The Highlands. The extreme north of the Highlands is a high, rather monotonous, and generally windswept and treeless plateau which sinks gently toward the north and ends in cliffs of the greatest scenic beauty. Population is sparse; Wick and Thurso are small fishing ports, but agriculture is limited to simple pastoralism.

Glen More, also known as the "Great Glen," is a rift valley which extends from sea to sea and divides the Highlands of Scotland into a northwestern region and a southeastern, known as the "Grampians." The northwestern Highlands are more rugged and wetter than the Grampians. Their valleys are steep and narrow, dropping westward to the long sea lochs of the Atlantic coast. The population is very thin, and roads are bad, but tourists continue to be attracted by the wild beauty and the romantic associations of this coast. They come "By Tummel and Loch Rannoch and Lochaber" and cross "over the sea to Skye." Skye is the largest and one of the most rugged and beautiful of the islands lying close to the Scottish coast. Its mountains of red gabbro, the Cuillins, are a paradise for climbers and provide some of the most entrancing scenery to be found in Europe. Few among those who know the northwest would be unwilling to take the risk of cloud, mist, and rain for the sake of the few days of rare beauty which it offers.

Glen More contains the two narrow lakes Lochs Ness and Lochy, whose altitude is only a few feet above sea level. The Caledonian Canal was cut to join them with each other and with the sea at each end and thus to provide a ship canal from Inverness to Fort William. It is now chiefly used by pleasure craft that bring holiday-makers from Glasgow and other large cities.

The Grampians are more massive but at the same time more gentle than the northwest Highlands. Relief is strongest in the west, where, as in the northwest, there are many deep sea lochs.

Towards the east the landscape assumes a more uniform aspect. The mountains, especially the Cairngorms, tend to be flat-topped, and the whole area has the appearance of a plateau in which the work of dissection by ice has made much less progress than farther west. The rivers Garry and Spey, the latter flowing to the north, the former southward to the Tay, have together carved an easy route through the mountains by way of the pass of Drumochter, which is used by the chief rail and road routes into the Highlands. A number of hydroelectric power installations have been erected both here and in the northwestern Highlands. The largest installations are located at Sloy, Rannoch, and Etrochty. For a long period now the population has been declining. In the Glens one often finds only the ruins of the primitive crofts of the clansmen. The clans, the old tribal organizations, are broken and dispersed, and their colored tartans, once handwoven in their cottages, are now made in Lowland factories. Life was always hard in the Highlands; the climate was severe, the soil was poor and infertile, and the amenities of life were possible only for the few who could afford to purchase and bring them from a distance. When opportunity arose, the Highlanders drifted away to the factories of the Lowlands. The glens may be deserted, and the moors turned into deer "forest" and grouse moor, but Highland culture survives. Emigrant Scots, from Canada to New Zealand, retain their identity, wear their costume, practice their ancient dances, and hold their folk festivals. Foremost among the cultural traits that survive in the Highlands is the Scottish language—Gaelic—which continues to be spoken by some people in the northwest and in the islands.

On the east and north the Grampians drop gradually to an undulating belt of lowland, which begins near Stonehaven, widens into the plateau of Buchan, and again narrows. It lies in the rain shadow of the Highlands. Its temperatures are low at all seasons, and it is suited best for grazing and producing fodder crops. This has come to be a famous cattle-rearing area, as the Aberdeen-Angus breed serves to show. A number of small towns lie along the coast, from which the fishing

industry is carried on. Inverness is a route center for the northwest Highlands. Aberdeen (186,000)¹ plays the similar role of local capital for the Grampians and the east coast region.

The Lowlands. The Scottish Lowlands form a belt of land up to 50 miles wide, bounded by faults which mark the edge of the Highlands and the southern Uplands. Between the faults, rocks of a younger geological age than those which appear in the hills to north and south have been preserved. These include coal measures, which have here been folded and eroded to form three distinct basins.

The Ayrshire coalfield lies near the west coast. It covers a large area but is not really of great importance, as its reserves of coal are small. It was developed early, however, and a number of industrial towns have grown up on the field. The Lanarkshire coalfield is the largest in its resources. It stretches from the Firth of Clyde to the Firth of Forth, and its presence has given rise to a large and varied industrial growth, which has long since overflowed the boundaries of the coalfield. The iron and steel industry is now the most important, and large new smelting works and steelworks have been established near Motherwell. On or near the coalfield are the cotton textile centers of Paisley, Lanark, and the large Glasgow conurbation, and along the banks of the Clyde is the largest center of the shipbuilding industry in the British Isles. The Midlothian-Fifeshire field is small in area and divided by the Firth of Forth, here some 10 miles wide. But this field has larger reserves than the others, and is at present the leading producer. This development, however, is fairly recent, and the coalfield has not yet attracted the industrial development which characterizes the other coalfields.

The economic and social life of the central Lowlands is dominated by two cities, Edinburgh

¹ The population in 1961 is given for all cities of over 100,000. All cities of this size are named except the London boroughs (see Fig. 13-1). In the Irish Republic, where only Dublin exceeds 100,000, the population is given for cities of over 50,000.

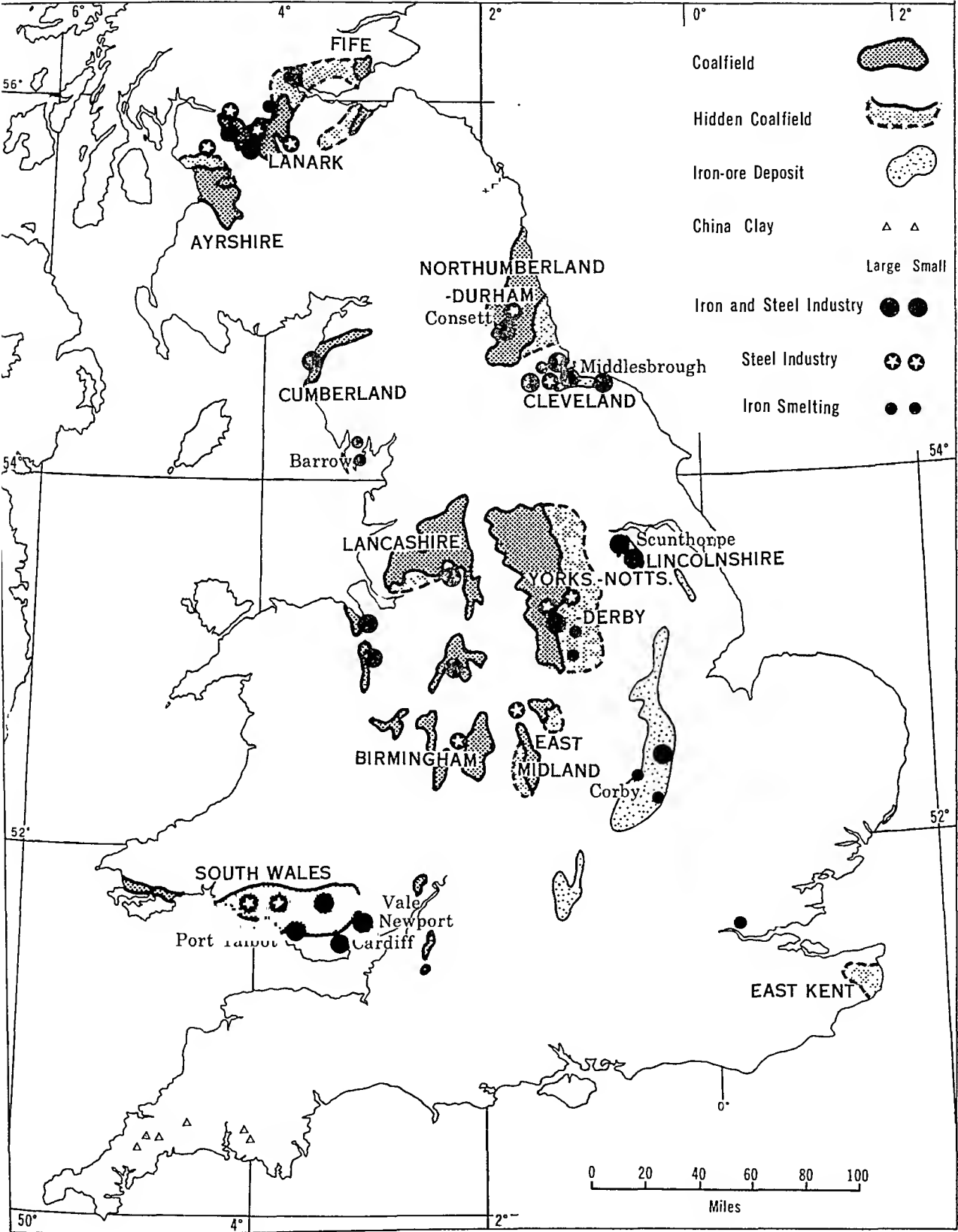


FIGURE 12-5. Great Britain: coal and mineral production; the distribution of iron and steel production.

and Glasgow. Edinburgh (368,400) is the titular capital of Scotland. It lies close to the south shore of the Firth of Forth and grew up around a castle built upon an isolated volcanic plug. It has become a cultural and artistic center. It has many relics of Scotland's past, and the modern city is strikingly beautiful and well laid out. Glasgow (1,054,900) is a port. It has developed industries based upon its import of colonial goods and has added shipbuilding in the yards along the Clyde below the city, steelmaking and engineering, and chemical and textile industries. In contrast with Edinburgh, Glasgow represents the less-attractive aspects of nineteenth-century industrial development. Greenock, near the mouth of the Clyde, serves as an outpost to Glasgow. There are a number of other centers of industrial activity: Dundee (183,000), on the northern shore of the Tay, is the seat of the jute industry; Kirkcaldy, of linoleum.

The rocks of the Lowlands have been intruded by granite and similar igneous rocks, which have in turn been eroded into a line of hills, stretching from northeast to southwest. The towns of Perth, Stirling, and Dumbarton are set in the river gaps between them, as if to protect the Lowlands from incursions of Highland raiders.

The Lowlands contain today the bulk of the population of Scotland, all its large cities, and most of its industrial activities. The central Lowlands contain also the most extensive area of agricultural land in Scotland. The climate is cool and moist; the latitude is that of the Alaskan "Panhandle." Wheat is little grown, but oats, barley, and potatoes are important, and cattle rearing is practiced. Both the Ayrshire and the Aberdeen-Angus cattle originated in the Lowlands of Scotland.

The southern Uplands and the Cheviot Hills are a broad upland region. The aspect of the country is more gentle than that of the Highlands. The hills are rounded and grass-covered. The valleys are broader, their sides are less steep, and they open out in the southwestern district of Galloway and in the Tweed Valley into extensive areas of low, undulating agricultural country, which has far greater potential than the Highlands.

The Uplands have been chiefly important for their sheep, which formerly nourished the tweed industry. The industry survives in the factories of Galashiels, Peebles, and Kelso, but it is now supplied with wool from overseas. The Merse, with lower altitude and lower rainfall than most of the region, is an agricultural region; the wetter, more westerly lowlands of Galloway are more important as dairy and stock-rearing land. Stranraer in the southwest is the packet station on the shortest of all the crossings to Ireland, the 35 miles to Larne, near Belfast.

Scotland is part of the United Kingdom, as it has been since the Parliamentary Union of 1707. Scotland's population is 5,128,500, as against the 46,071,604 of England and Wales in 1961. On the whole Scotland's population is poorer than England's, which is not surprising in view of the conditions in which much of its agriculture is carried on and the obsolescence of much of its industry. There has long been a steady efflux of Scotsmen not only to England but to other parts of the Commonwealth and Empire, where their hardiness, frugality, and industry have enabled them to prosper, and Scotland continues today to lose population. Scotland has become Anglicized in many ways without losing its distinctive character. The Scottish language, Gaelic, has disappeared from the Lowlands but survives in the mountains of the northwest, where its chances of surviving long in a population that is aging and declining are not great.

Many Scots resent this assimilation of Scotland by England, and a growing minority continues to demand home rule or independence. There is a minister in the British government specially charged with the supervision of Scottish affairs, but it is highly improbable that complete independence for Scotland would be desirable or, in fact, practicable.

NORTHERN ENGLAND

The Pennines form a north-to-south ridge, composed mainly of limestone. Geologically it is an anticline. A hard sandstone, known as "millstone grit" from an earlier use to which it was put, and

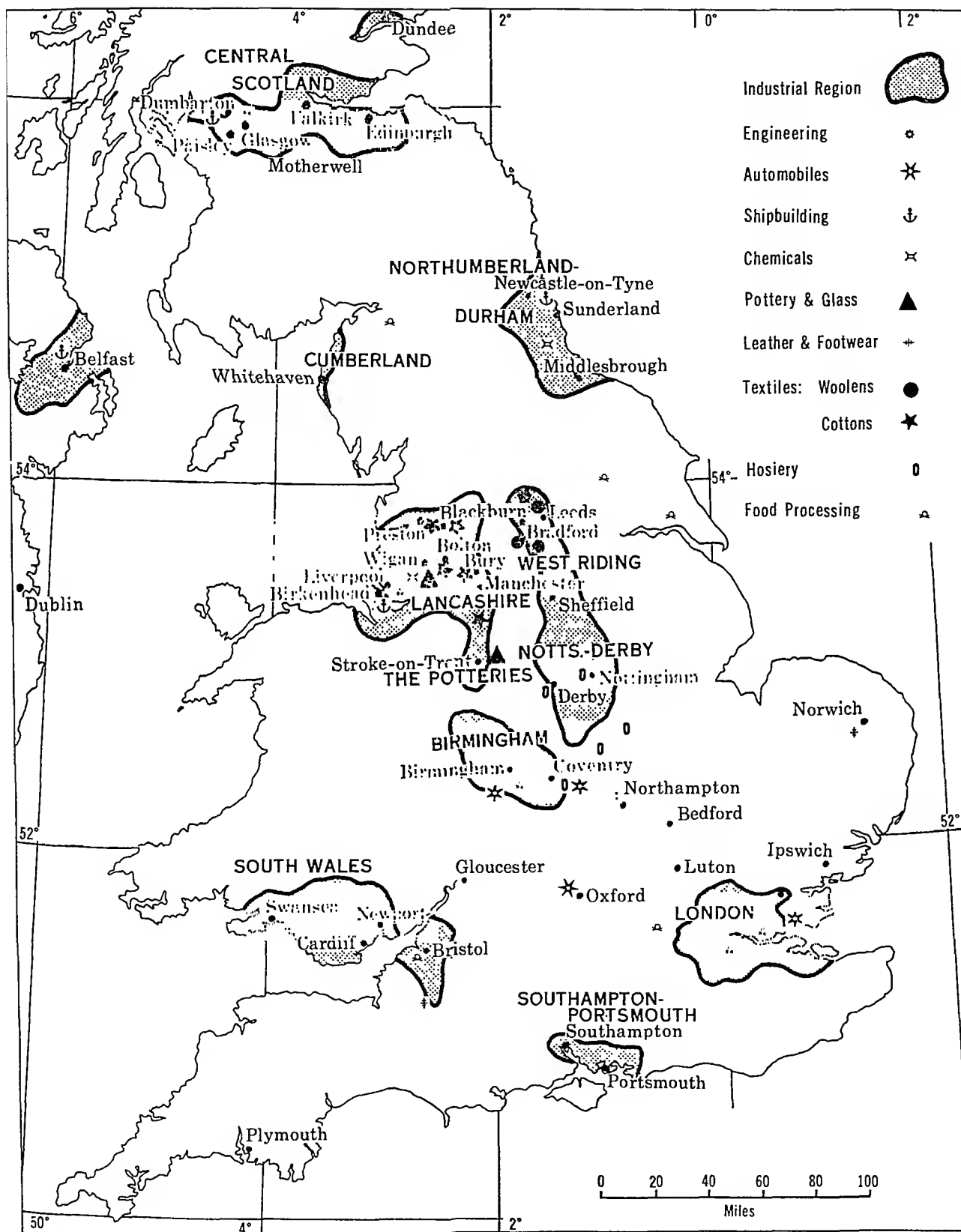


FIGURE 12-6. Great Britain: industrial regions; distribution of the principal branches of industrial production.

coal measures occur along the flanks of the range and dip away both eastward and westward beneath younger and softer rocks. Where the limestone forms the surface, the Pennines are dry and have a cover of short grass, once grazed by numberless sheep. The millstone grit by contrast produces a soil that is sour and often waterlogged. Neither is of much value for crop husbandry, though grazing was formerly important. One of the most valuable uses to which the Pennines are now put is the catchment of water which is held in many reservoirs along their margin to supply nearby industrial cities.

The coalfield is almost continuous along the eastern flank of the Pennines, though less so on the west. The Pennines are penetrated by wide, open river gaps, the Tyne Gap in the north, the Tees Gap and the Aire Gap farther south. In the "Dales" of the northern Pennines and again in the Peak District in the south, the limestone moors have been much eroded and their valleys form regions of great beauty and are an attraction to tourists. This is particularly fortunate, because only a few miles to east and west are the industrial regions of northern England. The moors serve as "lungs" to the soot-blackened industrial cities.

Lying to the west of the northern Pennines is the so-called "Lake District," a small, rounded area of ancient rock and strong relief that has come to be one of the most frequented of the resort areas of the British Isles. Long, narrow lakes of glacial origin lie in a radial pattern, pointing outward from the high central core of the area. It is a region of no great altitude: its highest mountain—Scafell—reaches only 3,162 feet, but it is one of strong relief, of cliffs, crags, and sharp arêtes, as favored by the rock climber as the lakes are by the tourist.

Surrounding the Lake District is a narrow band of agricultural land. It is cool and damp and devoted more to pastoral uses than to crop husbandry. Sheep and cattle of the Lowland farms often summer in the mountains of the Lake District. North of the Lake District, the deep inlet of the sea known as Solway Firth extends inland close to the Pennines. Road and rail are obliged

to pass around its head, where has grown up the great route center of Carlisle, once a fortress protecting the way into England from the north, now a railway junction and industrial city.

The Northeast Industrial Region Four of the most significant industrial regions of England have grown up along the flanks of the Pennine uplift, based upon the resources of coal that are to be found there. East of the northern Pennines, the coal measures of the Northumberland-Durham coalfield stretch out to and under the sea. Even in the Middle Ages coal was cut from the cliffs and exported. The port of Newcastle-upon-Tyne (269,400), lying 8 miles up the river Tyne from the sea, handled much of the coal export. "Sea" coal was taken to London and other ports, and the phrase "carry coals to Newcastle" entered the English language. The earliest coal workings were open cuts on the coast or valley sides. The first deep mines were sunk toward the west of the coalfield, where the coal measures rise to the surface, and the oldest centers of industry were established here. With the gradual exhaustion of mines on this side, mining progressed to the east, and much of the mining is again near the coast.

Heavy industry is now chiefly located close to the tideway, though a few inland works are still active. The lower course of the river Tyne, from Newcastle to the sea, is lined with shipbuilding yards and factories. Opposite Newcastle is Gateshead (103,200), and at the mouth of the Tyne is South Shields (109,500). The Tyne is, after the Clyde, the most important shipbuilding area but partly because the river is narrower, specializes in smaller craft. At the mouth of the river Wear is Sunderland (189,600), a steel-manufacturing and heavy engineering center. On the estuary of the Tees are both Middlesbrough (157,300) and the Hartlepoons. These lie within a short distance of the coalfield, while to the south are the Cleveland Hills, from which some bedded iron ore is still obtained. The Cleveland ore formed the base upon which the steel industry of the northeast was founded, but production is now insignificant and is replaced by imports from Sweden and else-

where. Most of the furnaces are located along the southern shore of the Tees estuary in situations that in some respects resemble that of the Gary-South Chicago steel mills. This is already one of the most important centers of the British steel industry, and its capacity is at present being increased. At Billingham the chemical industry has developed around a fertilizer plant, and is now one of the most important in Great Britain. Here also is the only significant works for the production of oil and gasoline from coal by-products.

The Northwest Industrial Region. The Cumberland coalfield occurs to the west, between the hills of the Lake District and the sea. Its output is small, less than 2 million tons annually, though its coastal location has given it a certain importance in the coal export. The region contains small reserves of iron ore, on the basis of which an iron and steel industry developed. A small but now rather old and congested industrial region has grown up around the cities of Whitehaven and Workington. A few miles to the south is Barrow-in-Furness, a city with engineering and shipbuilding industries.

Far greater importance attaches to the coalfields and industrial regions of Lancashire and Yorkshire. These lie on opposite flanks of the Pennines, and each has coal measures coming to the surface on the edge of the hills and dipping westward in Lancashire and eastward in Yorkshire beneath the younger rocks. In each, as in the northeast, mining was first carried on along the outcrop, but new mines are being sunk into the "hidden" coalfield.

Industrial Lancashire. Little manufacturing industry was carried on in Lancashire before the establishment in the eighteenth century of the cotton textile industry. The location of this industry in Lancashire is not easily explained. The region had no conspicuous advantages which other parts of England could not offer in a similar degree. Considerable opposition to the introduction of the cotton industry elsewhere was raised, however, by the woolen industrialists, and Lancashire was an area where the influence of the latter was comparatively

weak. As the industry developed, other advantages, not at first apparent, manifested themselves: the water power of the Pennine valleys, the coal of the Lancashire coalfield, and the ports of Liverpool (755,000) and the Mersey estuary. The industry is divided geographically into a spinning, a weaving, and a finishing area, a division which derives from the earliest phases of the industry. The raw cotton is now largely imported through Liverpool; some passes up the ship canal to Manchester. Spinning is carried on in a semicircle of towns to the north and east of Manchester, from Bolton (161,000) through Bury, Rochdale, and Oldham (115,000), to Stockport (142,000). The yarn is woven into cloth in a group of towns lying to the north of the Rossendale Forest, a westward spur from the main Pennine range. The larger are Nelson, Colne, Burnley, Accrington, Blackburn (152,000), and Preston (113,000). The largest centers of cloth finishing are in or close to Manchester. The Lancashire cotton industry remains today of great international importance, though the rise of cotton manufacturers in other countries has greatly reduced the volume of exports during the past half century. The cotton industry has in recent years undergone a process of rationalization, by which smaller and older works have been closed and production concentrated in the larger and more efficient.

The industries of Lancashire are by no means limited to the manufacture of textiles. The availability of coal, the relatively easy means of transportation, and the large local market encouraged the growth of iron- and steel-using industries. This is not primarily a smelting area—though there are iron and steel works at Irlam, on the Manchester Ship Canal—but iron tubes, wire, and similar goods are made at Warrington, Runcorn, and other towns. The chemical industry, particularly in Wigan and St. Helens (108,000), has achieved an importance due partly to the local supplies of coal and salt and partly to the local demand for bleaches and dyestuffs.

Manchester (661,000) is the business and commercial center of the region. It lies just off the coalfield. It was once the site of a Roman camp but throughout the Middle Ages was no

more than a village in one of the most backward and least populous of counties. Its rise dates from the establishment of the cotton textile industry. In the nineteenth century it grew fast. Its growth was unplanned, and it is today one of the less attractive of the creations of the Industrial Revolution. Close to Manchester is Salford (155,000). Liverpool, 30 miles to the west, is the port for the Lancashire industrial area. It was of some small importance before the industrial age as a port of embarkation for Ireland but grew to be the second port in the British Isles only with the rise of the industries of northern England. The broad Mersey estuary provides a sheltered waterway, along whose flat and marshy shores dock basins, warehouses, wharves, and railway yards could be built. On the west bank of the Mersey estuary are the industrial cities of Birkenhead (142,000) and Wallasey (103,000). The Manchester Ship Canal takes ocean-going vessels with their cargoes into Manchester, and a smaller canal stretches southeastward to the Midlands and to the region of Stoke-on-Trent.

The plain of Lancashire is low lying and almost flat. Some is reclaimed marsh, and most of it is now intensively cultivated to supply the industrial cities with milk and vegetables. Along the coast are resorts, of which Blackpool (152,000) is the largest, where millworkers find relaxation.

North Staffordshire. The city of Stoke-on-Trent (275,000) lies on the small coalfield of North Staffordshire, which is, in effect, a southward continuation of the coalfield of Lancashire. This small area has acquired a distinctive character and a worldwide reputation as the center of the English pottery manufacture. Its dominant industry derives from the fact that the eighteenth-century potter Josiah Wedgwood lived and worked here, rather than from any conspicuous natural advantage. The area had coal and a clay very suitable for pottery, known as the Etruria marl, though the materials of which pottery is made, china clay, barites, and bone, are now largely imported. The city was once dotted with the smoking beehive ovens in which the ware was baked; Stoke is inconceivable without its ovens.

Yet these distinctive features are disappearing fast, replaced by continuous electric furnaces, and will soon be only of archaeological interest. Every activity is dominated by the processing of clay. The atmosphere of this region is conveyed in the "regional" novels of Arnold Bennett, some of which present a study of life in the "Potteries."

The Yorkshire-Nottinghamshire Coalfield. On the eastern flank of the Pennines is a coalfield which occupies part of the West Riding¹ of Yorkshire. The industry of Yorkshire is as firmly based on the manufacture of woolen cloth as that of Lancashire is on cotton. The woolen-cloth industry is much older than the cotton. When the traveler Defoe visited the region early in the eighteenth century, he found many small woolen mills strung along the small Pennine streams which provided water power. Yorkshire concentrated on the manufacture of the cheaper fabrics, for which in the eighteenth and nineteenth centuries the market was expanding the most rapidly. Older centers, like the southwest of England and East Anglia, declined in importance. When steam power was applied to cloth manufacture, Yorkshire was able to profit from the availability of coal, and the industry grew steadily in size and importance. Local supplies of wool from the sheep of the Pennines and of the limestone hills of southern England proved inadequate at an early date and were supplemented by imports from Australia and other parts of the world.

There is no distinction in the West Riding between the centers engaged in spinning and in weaving, nor is the manufacture of woolen cloth, worsted, and shoddy (an inferior fabric made from reused wool and the combings from better yarn) clearly distinguished. Leeds (511,000), is the focus of these industries. It is not primarily a clothmaking town, any more than Manchester is engaged directly in the cotton industry. It is rather a great cloth user, manufacturing ready-made clothing and similar goods, and is the business and commercial center of the region. Hud-

¹ Riding, originally Trithing, is one of the three divisions of Yorkshire.

Sheffield (130,000) is the chief of several cities engaged in the manufacture of woollens; Bradford (296,000) and Halifax (96,000) are particularly noted for worsteds.

The woollen industry is concentrated in the valleys of the Aire and the Calder. To the south, in the Don Valley, is the Yorkshire steel industry. This, like many others, developed upon the basis of local iron ore and charcoal from nearby forests. The substitution of imported ore and coke from the local coal came gradually. With these changes, however, the industry developed into one of the largest in Europe. Little smelting is now carried on here; pig iron is brought into the region from such smelting centers as Middlesbrough for refining and fabrication. Sheffield (494,000) retains the high reputation which it built up in the nineteenth century for the quality of its steel. The city lies in a narrow valley of the Pennines, but modern development has spread eastward to the plain, where the steel-manufacturing towns of Rotherham and Doncaster have grown up.

The West Yorkshire industrial region is served primarily by the Humber ports of Goole and Hull (Kingston-upon-Hull, 303,000). The Pennines are, however, no serious barrier to communications, and the west coast port of Liverpool is also used. Canals and canalized rivers link West Yorkshire with the Humber, but the inland waterways are narrow and no longer of great importance.

The coalfield of the West Riding is continued southward into Nottinghamshire but ceases to bear any large industrial concentration. Coal mining is carried on in large villages, such as Eastwood, where D. H. Lawrence was born, rather than in towns. Chesterfield, and Worksop have metallurgical industries, but manufacturing industries here are neither highly specialized nor geographically concentrated. Nottingham (311,600), formerly a center of the lace industry, is now important for hosiery, the raw materials of which, cotton and woollen yarn and synthetic fibers, are obtained, respectively, from Lancashire, Yorkshire and chemical factories of the Midlands, and pharmaceutical goods. The output of the whole coalfield is generally about 40 million tons annually, making the most productive in the United Kingdom.

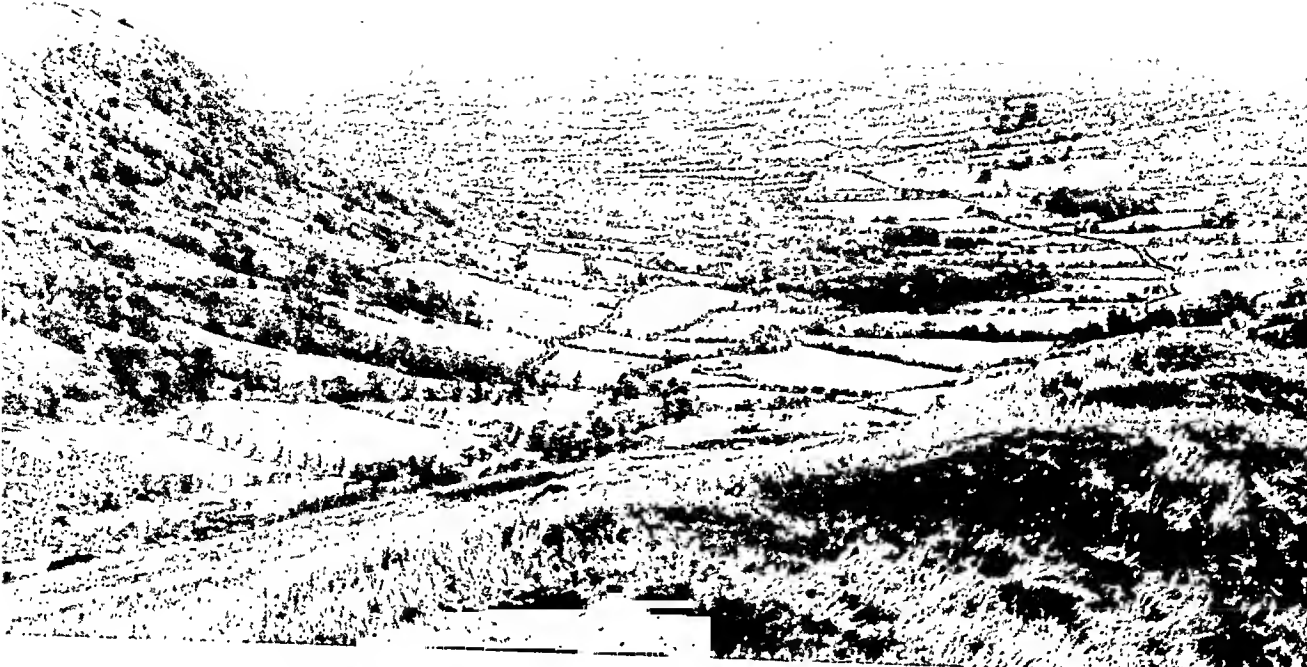
Derby (132,000), located on one of the main railroads from London to the north, was adopted as a center of the railway engineering industry, and to this has been added more recently the important motor and aircraft engineering industry of Rolls-Royce.

These great industrial cities lie close to the Pennines, overshadowed by the moors in some instances, wrapped around by hills in others. To east and west is lower land. East of the Pennines is the low, fertile valley of the Trent. Beyond this are low, swelling hills and rich farmland and then the coast of the North Sea.

Most of northern England is part of the Highland Zone. It has a character quite different from that of Midland or southern England. Its people are industrious, independent, grasping, even pugnacious. Southerners would describe the north as more raw and less civilized; certainly it lacks the ease and charm of the south. Its landscape has a darker and more rugged character. In literary terms, it differs from the south as the novels of the Pennine-born Brontë sisters differ from those of Wessex-born Thomas Hardy. The north is highly industrialized but has only a narrow range of industry: cotton and wool, iron and steel, chemicals, and shipbuilding. When an economic depression, strikes the north, it hits hard; the south, more diversified and more agricultural, takes the blow more easily. The south has not had "depressed" areas, but the north has, and even today there are large pockets of unemployment in some of these highly specialized industrial centers. New industries go to the south, not to these old, decayed industrial regions.

WALES

Wales has an individuality as strongly marked as northern England. Like the rest of the Highland Zone it is built of old, hard rocks; it has thin, poor soils, a wet climate, and a poorly developed agriculture. Like the Scottish Highlands, the hills of Wales have lost people by migration in modern times. Along the border between Wales and England are the Marches, a beautiful region of hills and broad green valleys, where the mountains



The Senni Valley, on the northern flanks of the Brecon Beacons in South Wales, shows the contrasting forms of land use in the Highland Zone: pasture in the valley; woodland and scrub on the slopes, and rough grazing over the rounded summits. IN. J. G. Pounds.)

k to the English Plain. Its border position between Wales and England made it once a very settled region. It is strewn with the remains of the castles of the "Marcher Lords," commissioned to hold back the Welsh who, from the fertility of their hills, loved to raid the "fat and idle plain." Chester (once a Roman fortress), Shrewsbury, Ludlow, and Hereford are the cities of the Marches, now sleepy market towns, their castles and walls in ruins.

The Marches are a cattle-rearing, dairy-farming region on which makes Cheshire cheese and breeds white-faced Hereford cattle. The region is protected by the hills from westerly winds and is warmer and more sunny than most of Wales. Fruit trees grow in the vale of Hereford and fruit orchards on the plain of Shrewsbury. It is a region of small farms, compact and brightly colored villages, and small market towns.

North Wales is the most mountainous part. The mountains of Snowdonia rise abruptly from the narrow coastal plain, and the summit of Snow-

don, the highest mountain in England and Wales, is within 10 miles of the sea. The Snowdon mass is a small but rugged area and attracts many climbers and others who wish to pass a vacation walking over its grassy slopes or climbing over its crags. These drop away to the west into the hummocky lowland of the Llyn peninsula. Along the coast are resorts, and off the coast, separated from the mainland only by the narrow Menai Strait, is the island of Anglesey. This is a gentle, rolling area of green meadows, dairy farms, and villages.

North Wales and Anglesey have been a kind of stronghold of Welsh nationalism. The Welsh language survives in these hills; it is normally spoken in the home, though all who have to deal with tourists speak English. Welsh nationalism is fully as vociferous as Scottish, but no more effective. Welshmen often complain that their interests are neglected, but it is very doubtful whether an independent Wales would be politically and economically any more practicable than an inde-

pendent Scotland. The British government has a Minister of State for Welsh Affairs, and the British Broadcasting Corporation transmits partly in Welsh from its radio and television stations to its Welsh-speaking public.

The whole of central Wales is a rolling upland or plateau. The valleys are wider and more open than those of north Wales. The hills are more rounded, and in every way the work of ice is less conspicuous. Agriculture, including the production of grain crops, is carried on in the valleys, and sheep and cattle are grazed over the hills. Central Wales is easily penetrated by the broad valleys of the Dee, Severn, Wye, and Usk, which open out toward the English Plain. The English have penetrated the country by these routes, isolating north Wales from the rest. Central Wales is oriented toward the English Plain, not toward either north or south Wales.

A coal basin occupies part of south Wales, and its existence has given rise to an industrial region of great importance. The coalfield reaches from near Newport (108,000) and Cardiff (256,000) in the east to Swansea (167,000) and Llanelli in the west. On its northern edge the coal seams rise to the surface within the limits of the hills. Long, narrow valleys open southward, and along their bottoms are mines and mining villages. Smoke from the mines hangs in these narrow valleys and stains all buildings a dark-gray hue. The steel industry grew up here, as iron ore was obtained from the coal measures. Towns like Rhondda (100,300), Dowlais, Tredegar, and Merthyr Tydfil

developed on the basis of local coal or iron. But local ores have been exhausted, and are now replaced by imported ores. Apart from the large Ebbw Vale works, the iron-smelting and steel-making industry has moved to the coast, where the huge Port Talbot and Newport works have been built. Some inland centers are "depressed," but others have been able to develop new industries on a significant scale to replace those lost.

A particularly important branch of the metal industry is the rolling of fine steel sheet and coating it with a thin covering of tin. The production of tinplate was probably encouraged by the fact that tin could formerly be obtained from the mines of Cornwall. This source of supply has been replaced by imports from Malaya.

The coal of the South Wales field includes the only really important British reserve of anthracite and hard steam coal, suitable for ships' bunkers. It was formerly exported from the Welsh ports to ships' coaling stations throughout the world, but ships and factories are now going over to other forms of power. The British coal export has declined very seriously in recent years (see page 173), though the South Wales production is still about 19 million tons a year. Cardiff focuses the activities of the eastern part of the coalfield. It lies opposite the entrance to several mining valleys. It is a port that handles coal, foodstuffs, iron goods, and ore, and has had a varied industrial development. Newport, at the mouth of the river Usk, is smaller. Swansea, also lying on the coast with extensive docking facilities, similarly

"On Wenlock Edge the wood's in trouble," wrote A. E. Housman. This photograph shows the wooded escarpment known as "Wenlock Edge," in the Marches or borderland of England and Wales. On each side of the ridge is the "patchwork-quilt" pattern of small, irregular fields. (Aerofilms.)



concentrates the activities of the western part of the coalfield. Llanelly and Neath are chiefly engaged in iron, steel, and tinplate manufacture.

South and west of the industrialized region of the coalfield are small areas of rural and agricultural country. The vale of Glamorgan, to the south, is rich grazing land of the highest importance in supplying the nearby cities with milk. To the west is the low plateau which makes up Pembrokeshire. At the coast it terminates in high cliffs, whose continuity is broken by deep branching inlets which are, in reality, valleys drowned by a geologically recent rise of sea level. Milford Haven is the largest of these; its sheltered waters form one of Britain's lesser naval bases, and have recently been developed as a petroleum port, because they are deep enough to accommodate the largest of modern tankers.

South Wales was occupied by the English at an early date. The region is dotted with the ruins of their castles, built to protect themselves and their routes from the Welsh of the hills farther north. This advance of the English along the plain between the hills of central Wales and the sea took them to Pembroke, from whose craggy coast they sailed to the conquest of Ireland. The traveler today can also cross to Ireland from the Pembroke coast, where the little ferry port of Fishguard lies.

SOUTHWESTERN ENGLAND

The southwestern peninsula is, like Wales and northern England, a hilly region of hard rock and of distinctive local character. It was formerly, at least in Cornwall, a Celtic-speaking area, though the local language ceased to be spoken almost two centuries ago. It has been more receptive to English influences than has Wales, and its individuality has today no political overtones. The peninsula has a backbone of high, granitic moorlands, largest in the east, where they form Dartmoor, and smallest in the west, where the last of them runs out into the sea to form the massive boulder-strewn island of Land's End. The southwest is not so mountainous, but everywhere hilly. Before

the days of modern transport, travel was not easy, and this gave a degree of isolation to the whole. The land west of Exeter, which was the most westerly city of Roman Britain, was formerly as remote from the mainstream of English life as were the mountains of Wales.

The southwestern peninsula was intruded by metalliferous veins, which supported the once-important tin- and copper-mining industries. The reserves of copper are practically exhausted, and the tin mines of west Cornwall have almost all closed down. In its place, the extraction of china clay, formed through the decomposition of granite by gaseous exhalations from the interior of the earth, is now an industry of great importance and is carried on chiefly in the St. Austell district of mid-Cornwall. Granite is also quarried and exported from west Cornwall.

Agriculture is now the most important industry of southwest England. The rainfall is, in general, too heavy for intensive crop farming, though fodder crops are grown. Dairying is a more important branch of agriculture. The mild climate and the absence of severe winter frosts permit the production of early potatoes, vegetables, and flowers for the London and other urban markets. The tourist industry is also of great significance. The magnificence of the coast scenery and the beauty of the deep, sheltered creeks have proved an attraction to tourists, and there are numerous resort towns on the Devon and Cornwall coasts. The largest town in the southwest is Plymouth (204,000), with which is closely associated the naval base of Devonport. Falmouth, on the shores of the wide Falmouth harbor, is a ship-repairing center and is of some importance as the most westerly port in England.

The southwest has an atmosphere as distinctive as that of any other part of the Highland fringe. It has, like Ireland and parts of Wales and Scotland, a continuity of history over a long period of time. Ancient, pre-Christian, and even prehistoric practices and customs survive. Stone monuments 4,000 years old are found on its moors; its field boundaries and cottages and its granite churches have an air of antiquity more marked even than in the English Plain.

Lowland Zone

Lowland England differs from the Highland Zone in its gentler relief, in the younger age and greater softness of the rocks of which it is composed, and in its smaller rainfall and better soils. It is a low plain ridged with hills. The plain is developed generally on clay rock; its soils are often heavy, though much improved by centuries of cultivation. Much of this lowland, nevertheless, is still most important for its meadow and pasture rather than its crop farming. The ridges of higher land are built up of limestone and chalk and, in a few areas, sandstone. These areas are drier and tend to be more often cultivated.

Lowland England has an aspect quite different from Highland. It has a richness, a lusciousness unknown in the harsh, infertile regions of the north and west. It is a land of tall meadow grass, of waving wheat fields, of clustered villages, orchards, and an infinity of small towns. Lowland England has been exposed, as Highland England has not, to invasion from across the narrow seas. Armies of invaders and groups of refugees have crossed to England, often bringing their peculiar skills and crafts with them. Flemings and Dutch in the past, West Indians and Pakistanis today make their contribution to the variety of life and experience in Lowland England. In time of war the Lowland Plain is more exposed. From the time of the Romans until today there have been occasions when the peasant and farmer have prepared, with pike and musket, rifle and machine gun, to protect the shores. On the Kentish coast are ruins of the Romans forts. The Normans built castles here; towers, called Martello Towers, were built at the time of the Napoleonic invasion scare; and there are concrete pillboxes in the hedgerows, put up in 1940. The sea:

*"Which serves it in the office of a wall,
Or as a moat defensive to a house,"*

has in modern times protected England from all except the threat of invasion. It has tended to isolate the English from the continent, but whether this happy condition can continue in an age of

guided missiles and airborne troops is at the least doubtful.

The plain has coal and good fertile land, navigable rivers, and easy communication by road. It achieved a political and cultural unity long before the Highland region, and the variety of its resources has given it a broader economic basis and a greater stability than the hilly areas to west and north. The map (Fig. 12-2) shows the Cotswold and Chiltern Hills, which stretch from southwest to northeast across the plain. Each consists of the outcrop of a resistant rock—limestone or chalk—which dips eastward beneath the next-higher rocks, generally clay, in the geological series. Both the limestone and the chalk form ridges, steep toward the west, gentle toward the east. Between lies the soft clay eroded into a lowland. The outcrop of the chalk forms a very unusual pattern. This is because the chalk which makes up the Chiltern Hills dips beneath the London Basin and rises again in the North Downs. The chalk is similarly continuous from the Dorset Downs beneath the Hampshire Basin to the South Downs. Between the North and South Downs the chalk once formed a great upfold which has been eroded away, exposing the underlying rocks in the so-called "Weald" of Kent and Sussex.

THE MIDLANDS

The English Midlands form a region of lowland, triangular in plan and about 100 miles along each side. It is a region of soft rocks and rather heavy soil, of pasture rather than crop husbandry. There are, however, many areas of lighter, drier soil, where fruit and vegetables are grown. In the center of the Midlands, the old, hard rocks, which make up the Pennines and Wales and which everywhere underlie the plain, rise to the surface. Coalfields occur and have brought about a transformation of parts of the rich agricultural lowland into closely built industrial cities and mining villages. On the west, the plain is drained by the Severn, on the north by the Trent, and on the southeast by the Avon, a tributary of the Severn.

In the heart of the Midlands the land rises to a low, undulating plateau, formed by an inlier of

the older rocks. The whole area has become highly industrialized. In a few areas, like Cannock Chase and Charnwood Forest, heath and woodland have survived, but generally, woodland and meadow have retreated before factories and mine tips, quarries and houses. Shakespeare's Forest of Arden has given place to Birmingham's suburbs. The spreading towns merge into one another, eating up the green countryside that once lay between them. Birmingham (1,106,000) is the center of a "Black Country," made up of Wolverhampton (150,000), Walsall (118,000), West Bromwich, Smethwick, and others.

The Black Country is the scene of a number of specialized metallurgical industries. The region lies in the center of England. It has no rivers of any useful size; its canals are small, and in the early days of its development, both raw materials and finished goods had to be conveyed by pack animals. This tended to limit the size of the goods, and the term "Birmingham goods" came to denote small ironware. Pins, needles, nails, locks, and chains were among the earliest of these specializations. The industry was based in the first instance on local supplies of iron ore, which was smelted with the charcoal from the Midland forests. Neither of these is available now, but the same industries are carried on on the basis of local coal and imported pig iron.

East of the Birmingham "conurbation," but still on or very close to one of the coalfields, are Coventry (305,000), with its mechanical engineering and automobile industries; Rugby, with its electrical engineering; Leicester (273,000), with hosiery and leatherworking; Burton-on-Trent, with brewing; and Derby and Nottingham, away on the border of the Pennines to the northeast.

Around the industrial region is a very different world, one of small towns which come to life on market day, when the farmers bring in their animals and produce for sale. Stratford-on-Avon, Warwick, Evesham, and Tewkesbury belong to this part of the Midlands. The low-lying and fertile plain reaches northward, down the Trent Valley, past Newark and Gainsborough, and northward into Yorkshire, where the city of York (104,000) lies in the midst of the plain, route

center and former capital and guardian of northern England. A great railroad depot and modern factories have been grafted onto the ancient core of the city.

SCARP AND VALE IN SOUTHERN ENGLAND

Limestone hills, which reach all the way from the south coast to the coast of Yorkshire, make up a region of rolling upland. There is little surface drainage. Valleys are shallow, and woodland limited to small clumps of beech or ash. Fields are separated by the dry-stone walling which is a feature of limestone country. Buildings are also of the local stone and sometimes even roofed with thin limestone "slates." The stone works well under the mason's chisel and weathers to a gray or golden color. For centuries beautiful buildings have been erected throughout this "stone belt" and paid for, in the past at least, by the wealth earned in sheep rearing on the dry, grassy plateau. Towns like Chipping Camden, Stamford, Oakham, and Bath are museums of ancient architecture and among the most beautiful places in England. Sheep are still important on the limestone hills, but the region is now devoted mainly to mixed farming. In the clay-floored vales between the limestone ridges and in the valleys where the larger streams have cut down through the limestone cap to the softer beds beneath, there are meadows and dairy farming is practiced. The limestone belt varies greatly in its aspect and development in the 300 miles that separate its southern from its northern limit. In the Cotswold Hills a scarp rises steeply from the valley of the Severn, and from its crest the eye ranges over the plain at its foot to the hills of the Marches and to the Welsh Mountains beyond. At the southern end of this region is Bath, lying in the deep valley of the Avon, built of gray limestone and rich in buildings of the eighteenth century and earlier. Twelve miles to the west is Bristol (436,000), an ancient city and now an important port with the varied industrial development commonly associated with a great port. It was formerly of considerable significance in the trade between Europe and the New World and today carries on industries such as the preparation



Lowland Britain consists essentially of a series of limestone scarps, with their alternating clay vales. The photograph shows the crest of the limestone Cotswold Hills. To the left is the valley of the Severn, near Gloucester. (N. J. G. Pounds.)

of tobacco, sugar refining, and the manufacture of chocolate and soap, based upon its earlier colonial trade.

The region continues in the Uplands of Northamptonshire, where its scarp character is less conspicuous. It has the aspect of a rolling upland, with dry grassland and stone-built walls and cottages on the higher ground and meadow and hedgerow in the hollows. It is for the greater part an area of mixed agriculture, with dairy farming tending to predominate. Ironstone occurs in beds in the limestone and in recent years has come to be quarried extensively. Iron smelting is an old industry here, but in recent years has been greatly developed with the establishment of a large blast furnace and steelworks at Corby. The destruction of agricultural land consequent upon these operations has come to be a serious problem in a land as small and as densely peopled as England. Farther north, the limestone belt contracts to a narrow ridge. Where it is crossed by the river Witham lies the city of Lincoln, its great cathedral perched

high on the edge of the limestone, overlooking the town and river. The belt is interrupted for a distance, to reappear and terminate in the Cleveland Hills of Yorkshire.

A belt of lowland reaches from Yorkshire almost to the south coast between the limestone hill and the chalk. It is not a level area; thin beds of limestone and sandstone come to the surface, producing smaller hill features. This clay plain is a land of heavy soil and slow, winding rivers. Fields are separated by thick hedgerows, and patches of woodland cover the less-productive areas. Building stone is rare. The clay permits brick production, and brick is the most common building material. In the past timber was much used, and in many villages the familiar black timber structure with white clay and wattle infilling appears. But the predominant coloring of the villages is now the red and yellow of the local brick.

There is little variation in the aspect of this clay belt. Toward the south, where it forms the

valley of the upper Thames, it is known as the Oxford Clay Vale. A low and inconspicuous watershed separates the Thames Valley from the basin of the rivers which flow toward the Wash. The whole region has a "parkland" appearance. The view is everywhere shut in by trees and tall hedges. The grass of the valleys is deep and green, and the countryside has a lusciousness and richness about it. Cows, pigs, poultry, fodder crops, produce, and grain are the agricultural products. The land is dotted with little market towns. A few of these towns, however, have grown to a considerable size and become places of more than local importance. Oxford (106,000) is the seat of a great university and also of an important automobile industry. Swindon, as a city, was created by the old Great Western Railway, which established its locomotive and carriage works here. Luton (132,000) manufactures automobiles and hats; Bedford, light machinery; Northampton (105,000), boots and shoes; Peterborough, bricks; and Cambridge, at the opposite end of the vale, electrical goods, but has remained essentially a university town. In their differing degrees, both Oxford and Cambridge preserve the atmosphere of medieval, cloistered, academic life in their colleges, each with its chapel and dining hall, where for centuries the life and work of the two old universities have centered.

In the neighborhood of the Wash, the clay vale passes into the Fens. The Fens of Cambridgeshire and Lincolnshire are a level expanse of peat and silt; above the surface rise "islands" of firmer rock on which the larger settlements have been made. The aspect of the Fens is not unlike that of Holland; windmills, though no longer of serious use in draining and pumping, are still prominent features of the landscape. The land in this area is new, trees are few, hedges are small and thin or even nonexistent, fields are large, and villages and farms are found mainly on the less-productive ground which rises above the dark peaty soil.

The chalk downlands appear to radiate from the nuclear area of Salisbury Plain. The Downs, which reach out like tentacles to the southwest, southeast, east, and northeast, provided easy routes

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The town of Salisbury at the convergence of several rivers of the plain is its chief town and market center. It is an open, spacious place. The rectangular plan of its streets, laid out in the thirteenth century, when its cathedral was built, perpetuates a classical form of city planning and anticipates the pattern of American towns. To the east is Winchester, a capital of Saxon England.

From this central area the chalk ridges reach out to form the Downs. The Dorset Downs stretch southwestward to the coast, the South Downs southeastward until they end in the white cliffs of Beachy Head, and the North Downs eastward to the Strait of Dover. The Chiltern Hills stretch northeastward across England and are continued in the Lincoln and Yorkshire Wolds, until they too end at the coast in the cliffs of Flamborough Head in Yorkshire.

The Downs, the "blunt, bald-headed, bull-nose Downs," rise steeply from the lower ground, their rounded summits terraced by prehistoric hilltop forts and dimpled by ancient burial places. They are broken by numerous gaps, where rivers cross them through incised valleys. Many of these valleys are occupied by "gap towns," which grew up around a castle built to defend the gap and which now profit from the convergence of routes. Arundel and Lewes are gap towns in the South Downs;

Guildford, Rochester, and Canterbury in the North.

The Chiltern Hills are crossed by a number of low gaps, all devoid of water except the artificial waterway of a canal. These, like the gaps in the North Downs, converge toward London and are of great importance in the trade and movement of the capital. Toward the northeast the chalk ridge becomes lower, its scarp character disappears, and it becomes merely a line of low rounded hills which continues northward to the Norfolk coast. It is covered with a patchy deposit of boulder clay, on which there is sometimes found a woodland cover. To the east this glacial cover becomes deeper and more continuous over the plateau of East Anglia.

The Weald is an area of older rocks set in a framework of chalk downland. It lies between the North and South Downs. In contrast to the chalk area, it has a wooded aspect. It has hedged fields and villages like those of the clay vale, of which it is, in effect, a kind of outlier. The Weald is on the dry side of England. It has more sunshine than most other parts and has become important for its fruit-growing industry. Here also most of the hops are grown, and the oast house, with conical roof and wind vane, for drying the hops, is an essential part of the Kentish landscape.

There are only small towns in the Weald. Factory industry has not yet crept into this region on any considerable scale in spite of its nearness to London. Along the coast are resorts: Brighton (163,000), Eastbourne, Hastings, Folkestone, and towns that were built to protect Britain from invasion—Winchelsea and Rye, Hythe and Dover.

EAST ANGLIA

East Anglia is a low plateau, much of it covered with boulder clay, in which the rivers have cut broad shallow valleys. The landscape varies from flat and rather monotonous boulder-clay plateau and heathy end moraine to soft, rich valleys with the slow-flowing streams that Constable loved to paint. Here are patches of woodland and the small towns that have scarcely grown since, in the late

Middle Ages, the wealthy merchants built their proud houses of half timber or brick and the superb East Anglian churches. The largest city of East Anglia, and its regional capital, is Norwich (120,000), a city with an unparalleled number of medieval churches and relics of its earlier history and now a center of the leather, boot and shoe, and food industries. Ipswich (117,000) manufactures cranes and agricultural machinery. Chelmsford, on the margin of East Anglia, is important for electrical engineering and the manufacture of ball bearings. Between Norwich and the sea are the Broads, formed by the partial silting of the joint estuary of several rivers; they consist now of a number of irregular shallow lagoons, much frequented by yachtsmen.

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LONDON BASIN

The London Basin is in a downfold of the chalk, filled in with later deposits of clay and sand. On the south it is bounded by the chalk of the North Downs, on the northwest by the Chilterns, and on the northeast by the margin of the drift-covered plateau of East Anglia. Both structure and topography are varied. Low, level areas of clay alternate with patches of gravel which form the caps of low hills. In the southwest the gravels are more extensive and produce broad areas of heathland.

London has grown up at a focal point in this basin. Its site appears to have been first occupied by the Romans, who found here the lowest practicable crossing of the river Thames. The physical conditions which made it the lowest bridging point

concentrates the activities of the western part of the coalfield. Llanelly and Neath are chiefly engaged in iron, steel, and tinplate manufacture.

South and west of the industrialized region of the coalfield are small areas of rural and agricultural country. The vale of Glamorgan, to the south, is rich grazing land of the highest importance in supplying the nearby cities with milk. To the west is the low plateau which makes up Pembrokeshire. At the coast it terminates in high cliffs, whose continuity is broken by deep branching inlets which are, in reality, valleys drowned by a geologically recent rise of sea level. Milford Haven is the largest of these; its sheltered waters form one of Britain's lesser naval bases, and have recently been developed as a petroleum port, because they are deep enough to accommodate the largest of modern tankers.

South Wales was occupied by the English at an early date. The region is dotted with the ruins of their castles, built to protect themselves and their routes from the Welsh of the hills farther north. This advance of the English along the plain between the hills of central Wales and the sea took them to Pembroke, from whose craggy coast they sailed to the conquest of Ireland. The traveler today can also cross to Ireland from the Pembrokeshire coast, where the little ferry port of Fishguard lies.

SOUTHWESTERN ENGLAND

The southwestern peninsula is, like Wales and northern England, a hilly region of hard rock and of distinctive local character. It was formerly, at least in Cornwall, a Celtic-speaking area, though the local language ceased to be spoken almost two centuries ago. It has been more receptive to English influences than has Wales, and its individuality has today no political overtones. The peninsula has a backbone of high, granitic moorlands, largest in the east, where they form Dartmoor, and smallest in the west, where the last of them runs out into the sea to form the massive boulder-strewn

the days of modern transport, travel was not easy, and this gave a degree of isolation to the whole. The land west of Exeter, which was the most westerly city of Roman Britain, was formerly as remote from the mainstream of English life as were the mountains of Wales.

The southwestern peninsula was intruded by metalliferous veins, which supported the once-important tin- and copper-mining industries. The reserves of copper are practically exhausted, and the tin mines of west Cornwall have almost all closed down. In its place, the extraction of china clay, formed through the decomposition of granite by gaseous exhalations from the interior of the earth, is now an industry of great importance and is carried on chiefly in the St. Austell district of mid-Cornwall. Granite is also quarried and exported from west Cornwall.

Agriculture is now the most important industry of southwest England. The rainfall is, in general, too heavy for intensive crop farming, though fodder crops are grown. Dairying is a more important branch of agriculture. The mild climate and the absence of severe winter frosts permit the production of early potatoes, vegetables, and flowers for the London and other urban markets. The tourist industry is also of great significance. The magnificence of the coast scenery and the beauty of the deep, sheltered creeks have proved an attraction to tourists, and there are numerous resort towns on the Devon and Cornwall coasts. The largest town in the southwest is Plymouth (204,000), with which is closely associated the naval base of Devonport. Falmouth, on the shores of the wide Falmouth harbor, is a ship-repairing center and is of some importance as the most westerly port in England.

The southwest has an atmosphere as distinctive as that of any other part of the Highland fringe. It has, like Ireland and parts of Wales and Scotland, a continuity of history over a long period of time. Ancient, pre-Christian, and even prehistoric practices and customs survive. Stone monuments 4,000 years old are found on its moors; its field boundaries and cottages and its granite

Lowland Zone

Lowland England differs from the Highland Zone in its gentler relief, in the younger age and greater softness of the rocks of which it is composed, and in its smaller rainfall and better soils. It is a low plain ridged with hills. The plain is developed generally on clay rock; its soils are often heavy, though much improved by centuries of cultivation. Much of this lowland, nevertheless, is still most important for its meadow and pasture rather than its crop farming. The ridges of higher land are built up of limestone and chalk and, in a few areas, sandstone. These areas are drier and tend to be more often cultivated.

Lowland England has an aspect quite different from Highland. It has a richness, a lusciousness unknown in the harsh, infertile regions of the north and west. It is a land of tall meadow grass, of waving wheat fields, of clustered villages, orchards, and an infinity of small towns. Lowland England has been exposed, as Highland England has not, to invasion from across the narrow seas. Armies of invaders and groups of refugees have crossed to England, often bringing their peculiar skills and crafts with them. Flemings and Dutch in the past, West Indians and Pakistanis today make their contribution to the variety of life and experience in Lowland England. In time of war the Lowland Plain is more exposed. From the time of the Romans until today there have been occasions when the peasant and farmer have prepared, with pike and musket, rifle and machine gun, to protect the shores. On the Kentish coast are ruins of the Romans forts. The Normans built castles here; towers, called Martello Towers, were built at the time of the Napoleonic invasion scare; and there are concrete pillboxes in the hedgerows, put up in 1940. The sea:

*"Which serves it in the office of a wall,
Or as a moat defensive to a house,"*

has in modern times protected England from all except the threat of invasion. It has tended to isolate the English from the continent, but whether this happy condition can continue in an age of

guided missiles and airborne troops is at the least doubtful.

The plain has coal and good fertile land, navigable rivers, and easy communication by road. It achieved a political and cultural unity long before the Highland region, and the variety of its resources has given it a broader economic basis and a greater stability than the hilly areas to west and north. The map (Fig. 12-2) shows the Cotswold and Chiltern Hills, which stretch from southwest to northeast across the plain. Each consists of the outcrop of a resistant rock—limestone or chalk—which dips eastward beneath the next-higher rocks, generally clay, in the geological series. Both the limestone and the chalk form ridges, steep toward the west, gentle toward the east. Between lies the soft clay eroded into a lowland. The outcrop of the chalk forms a very unusual pattern. This is because the chalk which makes up the Chiltern Hills dips beneath the London Basin and rises again in the North Downs. The chalk is similarly continuous from the Dorset Downs beneath the Hampshire Basin to the South Downs. Between the North and South Downs the chalk once formed a great upfold which has been eroded away, exposing the underlying rocks in the so-called "Weald" of Kent and Sussex.

THE MIDLANDS

The English Midlands form a region of lowland, triangular in plan and about 100 miles along each side. It is a region of soft rocks and rather heavy soil, of pasture rather than crop husbandry. There are, however, many areas of lighter, drier soil, where fruit and vegetables are grown. In the center of the Midlands, the old, hard rocks, which make up the Pennines and Wales and which everywhere underlie the plain, rise to the surface. Coalfields occur and have brought about a transformation of parts of the rich agricultural lowland into closely built industrial cities and mining villages. On the west, the plain is drained by the Severn, on the north by the Trent, and on the southeast by the Avon, a tributary of the Severn.

In the heart of the Midlands the land rises to a low, undulating plateau, formed by an inlier of

the older rocks. The whole area has become highly industrialized. In a few areas, like Cannock Chase and Charnwood Forest, heath and woodland have survived, but generally, woodland and meadow have retreated before factories and mine tips, quarries and houses. Shakespeare's Forest of Arden has given place to Birmingham's suburbs. The spreading towns merge into one another, eating up the green countryside that once lay between them. Birmingham (1,106,000) is the center of a "Black Country," made up of Wolverhampton (150,000), Walsall (118,000), West Bromwich, Smethwick, and others.

The Black Country is the scene of a number of specialized metallurgical industries. The region lies in the center of England. It has no rivers of any useful size; its canals are small, and in the early days of its development, both raw materials and finished goods had to be conveyed by pack animals. This tended to limit the size of the goods, and the term "Birmingham goods" came to denote small ironware. Pins, needles, nails, locks, and chains were among the earliest of these specializations. The industry was based in the first instance on local supplies of iron ore, which was smelted with the charcoal from the Midland forests. Neither of these is available now, but the same industries are carried on on the basis of local coal and imported pig iron.

East of the Birmingham "conurbation," but still on or very close to one of the coalfields, are Coventry (305,000), with its mechanical engineering and automobile industries; Rugby, with its electrical engineering; Leicester (273,000), with hosiery and leatherworking; Burton-on-Trent, with brewing; and Derby and Nottingham, away on the border of the Pennines to the northeast.

Around the industrial region is a very different world, one of small towns which come to life on market day, when the farmers bring in their animals and produce for sale. Stratford-on-Avon, Warwick, Evesham, and Tewkesbury belong to this part of the Midlands. The low-lying and fertile plain reaches northward, down the Trent Valley, past Newark and Gainsborough, and northward into Yorkshire, where the city of York (104,000) lies in the midst of the plain, route

center and former capital and guardian of northern England. A great railroad depot and modern factories have been grafted onto the ancient core of the city.

SCARP AND VALE IN SOUTHERN ENGLAND

Limestone hills, which reach all the way from the south coast to the coast of Yorkshire, make up a region of rolling upland. There is little surface drainage. Valleys are shallow, and woodland limited to small clumps of beech or ash. Fields are separated by the dry-stone walling which is a feature of limestone country. Buildings are also of the local stone and sometimes even roofed with thin limestone "slates." The stone works well under the mason's chisel and weathers to a gray or golden color. For centuries beautiful buildings have been erected throughout this "stone belt" and paid for, in the past at least, by the wealth earned in sheep rearing on the dry, grassy plateau. Towns like Chipping Camden, Stamford, Oakham, and Bath are museums of ancient architecture and among the most beautiful places in England. Sheep are still important on the limestone hills, but the region is now devoted mainly to mixed farming. In the clay-floored vales between the limestone ridges and in the valleys where the larger streams have cut down through the limestone cap to the softer beds beneath, there are meadows and dairy farming is practiced. The limestone belt varies greatly in its aspect and development in the 300 miles that separate its southern from its northern limit. In the Cotswold Hills a scarp rises steeply from the valley of the Severn, and from its crest the eye ranges over the plain at its foot to the hills of the Marches and to the Welsh Mountains beyond. At the southern end of this region is Bath, lying in the deep valley of the Avon, built of gray limestone and rich in buildings of the eighteenth century and earlier. Twelve miles to the west is Bristol (436,000), an ancient city and now an important port with the varied industrial development commonly associated with a great port. It was formerly of considerable significance in the trade between Europe and the New World and today carries on industries such as the preparation



Lowland Britain consists essentially of a series of limestone scarps, with their alternating clay vales. The photograph shows the crest of the limestone Cotswold Hills. To the left is the valley of the Severn, near Gloucester. (N. J. G. Pounds.)

of tobacco, sugar refining, and the manufacture of chocolate and soap, based upon its earlier colonial trade.

The region continues in the Uplands of Northamptonshire, where its scarp character is less conspicuous. It has the aspect of a rolling upland, with dry grassland and stone-built walls and cottages on the higher ground and meadow and hedgerow in the hollows. It is for the greater part an area of mixed agriculture, with dairy farming tending to predominate. Ironstone occurs in beds in the limestone and in recent years has come to be quarried extensively. Iron smelting is an old industry here, but in recent years has been greatly developed with the establishment of a large blast furnace and steelworks at Corby. The destruction of agricultural land consequent upon these operations has come to be a serious problem in a land as small and as densely peopled as England. Farther north, the limestone belt contracts to a narrow ridge. Where it is crossed by the river Witham lies the city of Lincoln, its great cathedral perched

high on the edge of the limestone, overlooking the town and river. The belt is interrupted for a distance, to reappear and terminate in the Cleveland Hills of Yorkshire.

A belt of lowland reaches from Yorkshire almost to the south coast between the limestone hill and the chalk. It is not a level area; thin beds of limestone and sandstone come to the surface, producing smaller hill features. This clay plain is a land of heavy soil and slow, winding rivers. Fields are separated by thick hedgerows, and patches of woodland cover the less-productive areas. Building stone is rare. The clay permits brick production, and brick is the most common building material. In the past timber was much used, and in many villages the familiar black timber structure with white clay and wattle infilling appears. But the predominant coloring of the villages is now the red and yellow of the local brick.

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London has grown up at a focal point in this basin. Its site appears to have been first occupied by the Romans, who found here the lowest practicable crossing of the river Thames. The physical conditions which made it the lowest bridging point

on the river also made it the highest point to which seagoing vessels could ascend. Today tunnels burrow under the river below the city, but London Bridge still sets a limit to ocean shipping. The Roman road system radiated from the city and is very broadly followed by the main roads today. When, during the nineteenth century, the railroad system began to develop, it also radiated from London.

The earliest city grew up on a low, gravel-capped hill by the north bank of the river. This site was chosen by the Norman kings in the late eleventh century as their principal seat, and here they built that combined fortress and residence which we know today as the Tower of London. To the west the ecclesiastical leaders founded St. Paul's cathedral; between lived the merchants and bankers, and along the banks of the Thames were the quays at which their ships loaded and unloaded.

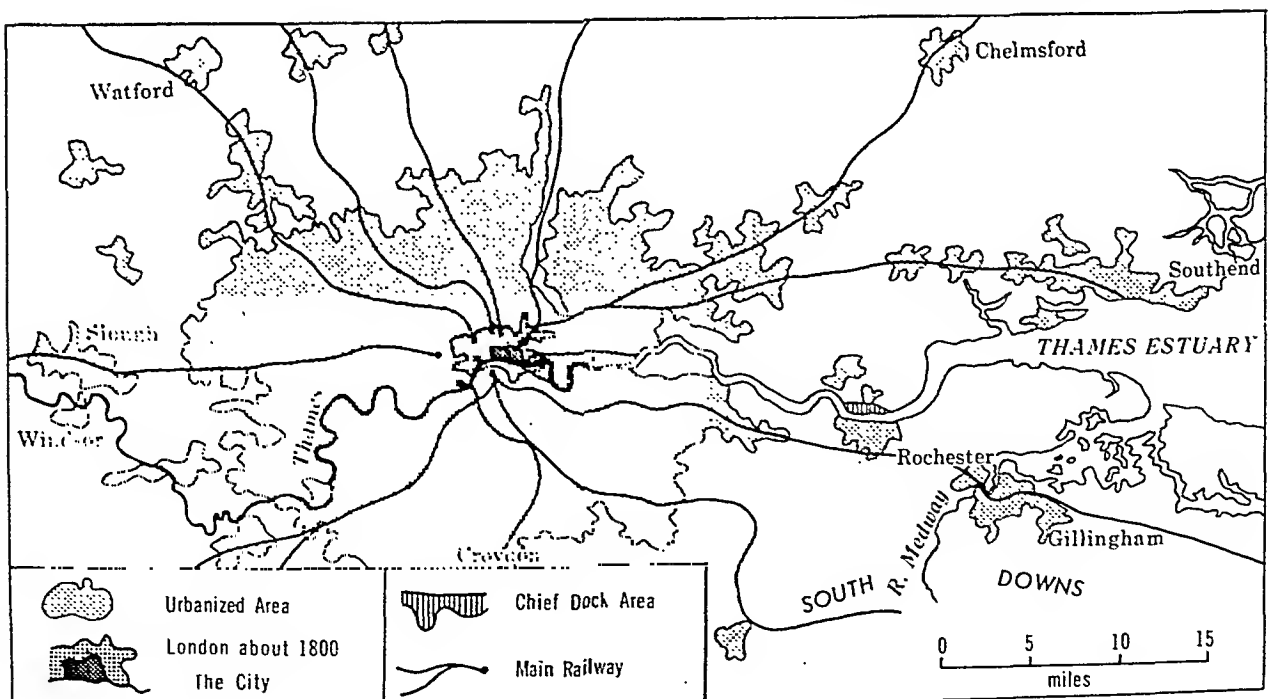
The royal residence was then moved westwards from the congested city to Westminster, where Westminster Palace developed from the London home of the King and the meeting place of his

advisers into the "mother of Parliaments." Westminster remains today the seat of Britain's government; several of the government departments line the street known as "Whitehall," and the London residence of the monarch has been moved yet again to nearby Buckingham Palace.

London has added other functions to those of commerce and government, by which it first came to be known. Ease of transport and a rapidly growing population have made it by far the most important center of retail shopping. The world of entertainment has taken a powerful hold on the "West End," between the ancient city nucleus and Westminster, and in the city itself banking, finance, and commerce have been developed to such a degree that the "City" is almost synonymous with financial operations. The British press is concentrated in London, where "Fleet Street" still means the world of journalism. Broadcasting and publishing are also centered here.

Despite these developments, London remains the largest and most diverse industrial center in Great Britain. No particular industry can be said to dominate. Most belong to the category of pro-

FIGURE 12-7. The London metropolitan area.



ducers of consumers' goods, which have been attracted to London by the presence here of a very large market—about a fifth of that of the whole United Kingdom. Manufacturing industry ranges from clothing to beer, from razor blades to furniture, from pharmaceuticals to baby foods. At or just beyond the boundaries of Greater London one finds iron smelting and automobile manufacture; along the lower Thames are cementworks and oil refineries. Much of the country's paper is made just beyond the City's suburbs.

Now with a population of over 8,172,000 (1961) Greater London appears to have reached a practical limit. New industries are still pressing to open up in London, but space is severely limited; transportation facilities are congested, and the provision of housing is increasingly important. The government which, through the planning authorities, is able to control land use, has set a limit to the outward spread of London. The city is now encircled by a "green belt," supposedly free from the contamination of industry, and the new industries which continue to come to the London region are obliged to settle in the "new" or satellite towns, established in a ring around London to house the city's slum-dwellers.

Other towns of the London Basin are dwarfed by the presence of London or have been engulfed by its expanding periphery. Reading (120,000) lies well up the Thames Valley, Watford beyond the city's northwestern margin. On the lower Medway is a small group of varied but contiguous towns: for example, Rochester, with its cathedral and castle, Chatham, and Gillingham. Farther to the east, on the Stour, is Canterbury. Along the shores of the muddy estuary of the Thames are docks, cementworks, power stations, oil refineries, and resorts for London's dense population, of which the largest is Southend-on-Sea (165,000).

In some respects the Hampshire Basin resembles the London. It, too, is a downfold of the chalk, between the Dorset Downs and the South Downs, which has been filled in with sands and gravel. Alluvium has produced rich meadows along the banks of the Stour and the Avon, another of the many rivers of that name, but a large area of infertile soil is occupied by the New

Forest. This area was set aside for hunting by William the Conqueror in the eleventh century. In choosing for this purpose a region of low agricultural value he showed a deeper geographical insight than many of his successors in government have displayed in more recent years.

Within this region are the ports of Southampton (205,000) and Portsmouth (216,000). The former has a deep navigable waterway and a system of tides which greatly favors its use by the largest liners. It handles comparatively little cargo, but most passenger liners sail from here. Portsmouth is the home port of the Royal Navy. Bournemouth (154,000), Southsea, Worthing, and Brighton (163,000) are resorts on this sunny and sultry coast.

The Isle of Wight

The "island" is a microcosm of Lowland England. Within its small area of 147 square miles it contains a denuded anticline like the Weald, a small area of chalk downland, and in the north, an extension of the Hampshire Basin. Its towns are very small. It has no significant industries except boatbuilding, and agriculture and catering for summer visitors occupy the attentions of its people.

Ireland

Ireland is a compact island, about 160 miles from east to west and 250 miles from north to south. Its coastline is rough, indented, and on the west and north, bordered by high cliffs, where the mountains meet the sea. The island is made up of a large central plain, drained for the greater part by the Shannon and surrounded by a ring of hills. These are individually small in area and sharp in outline, rising steeply from the plain and from the areas of lowland which separate them.

The climate is damp and mild, the weather cloudy, and rain frequent. As in southwestern England, grass grows well and crop farming is not common except in the drier districts of the east. Ireland is a poor region, and its total popula-

tion (about 4,240,000) is small. Its manufacturing industries are confined to the northeast; the west is one of the most poverty-stricken areas in all western Europe.

Ireland is divided politically into the Republic of Ireland and the province of Northern Ireland, which consists of the six northeastern counties. The latter is part of the United Kingdom and is represented in the Parliament at Westminster. The division of Ireland is artificial. It derives from the settlement of Northern Ireland by Scottish and English Protestants early in the seventeenth century, and is protested by the government of the Irish Republic.

NORTHERN IRELAND

Northern Ireland lies north of a line from Sligo Bay to Dundalk Bay and is larger than the political unit of the same name. It is a region of detached mountain masses between which meander the slow rivers on their way from the interior plain to the sea. In the northeast is the basaltic plateau of Antrim, with its "glens," deeply incised below the almost-level plateau surface. To south and west are the damp lowlands of the Bann and the Lagan, in which lies Lough Neagh. This is the principal center of flax growing in Ireland, and the small towns of this region, such as Lurgan, Lisburn, and Portadown, are chiefly engaged in making linen. Belfast (434,000), at the mouth of the Lagan, is the capital of Northern Ireland and the largest center of linen manufacture, and has in addition a declining shipbuilding industry. To the west of the Bann the region is more hilly. Between the Bann and Foyle Valleys are the Sperrin Mountains, and beyond the Foyle are the mountains of Donegal, Leitrim, and Fermanagh. This last is a wild and sparsely populated region with Londonderry its only town of importance.

WESTERN AND SOUTHERN IRELAND

The mountainous areas of Connemara and Mayo resemble Donegal in their relief, their poverty, the sparseness of their population, and their wild beauty. South of a line from the Shannon mouth

to Dublin is a region of isolated hill masses, separated by broad areas of rich lowland. Among these is the Golden Vale of Tipperary, famous for its dairy herds. To the east is the granitic mass of the Wicklow Mountains. In the southwest, the valleys become narrower and the hills merge into the rain-sodden mountain mass of Kerry. The rivers Slaney, Barrow, Suir, and Blackwater, with their tributaries, drain the valleys between the hills, making broad gaps between the coast and the plain of the interior.

Towns are few and small; Limerick (51,000) on the Shannon, Tipperary, Kilkenny, and Carlow are market towns and dairy centers. On the coast are the small ports of Wexford, Waterford, and Cork (78,000). Cork lies several miles up the river Lee but has an outpost in Cobh, formerly known as Queenstown, at which the transatlantic liners sometimes stop.

CENTRAL IRELAND

Central Ireland is a plain which occupies the whole of the center of Ireland and reaches to the sea near Dublin. The river Shannon joins together a number of lakes and gathers the slow drainage of much of this plain. Considerable areas are infertile glacial deposits, either hummocky drumlins or a sterile wash of gravel. More are covered with peat, which is cut for fuel but serves little other purpose. Away from the coast there are no towns except Athlone, itself little more than a village. Dublin (*Erse*: Baile Atha Cliath, 535,000) lies on the east coast, facing England. Behind it the land is drier and of some agricultural value, and here the barley is grown for Dublin's brewing industry. Dublin is the capital and largest city of *Eire*. It is a spacious city of great beauty but is not really an industrial town.

All parts of the Highland fringe have well-marked characters of their own. Ireland stands apart, cut off from the rest by the sea, and its character is more individual than that of the rest. Ireland has a continuity in its history and a strength of local tradition greater even than in Cornwall or Wales. During the Dark Ages it developed a civilization, associated with its Celtic

"saints," of a higher level than that which prevailed in England. During the Middle Ages the English, under Norman leadership, established bases on the Irish coast but failed to conquer more than the hinterland of Dublin, the "Pale" of English settlement. The Irish strongly resisted English settlement and ownership of the land. The warfare between Saxon and Celt was very bitter and has left a legacy of hatred until today. England made good her conquest. English settlers owned the land, and the province of Ulster was "planted" early in the seventeenth century with a hardy colony of vigorous Presbyterian Scots. This region is the Northern Ireland of today, mainly Protestant in religion and Unionist in politics.

Ireland, or Eire, obtained home rule in 1920 at the end of a bloodthirsty war, and this has developed into complete independence, Eire having ceased even to be a member of the Commonwealth. Eire remains Roman Catholic, while the rest of the British Isles is mainly Protestant. The political ambition of most Irishmen is to end "partition" and to reunite the whole island under the rule of Dublin. The Protestant majority of Northern Ireland resists this. Adjustments along the boundary in the counties of Armagh and Fermanagh might remove local difficulties and injustices but would not solve the problem of partition. Wholehearted cooperation with England, it may be said, is not likely while partition lasts.

Northern Ireland and Eire differ radically. Northern Ireland has a population of about 1,425,000; Eire has about 2,818,000 in an area about five times as large. Both are predominantly agricultural, but Northern Ireland has also large and well-developed shipbuilding and linen industries. The industries of Eire are more intimately connected with the country's agricultural activities. Eire is naturally a trading partner of Great Britain, yet repeatedly she allows her political prejudice to warp her economic policy. There have been times when the Irish would have preferred to starve in independence rather than to sell their butter to the English.

As might be expected, the exports of the Republic of Ireland are made up of agricultural

TABLE 12-1. Chief elements in the Republic of Ireland's foreign trade, 1962 (In millions of sterling)

Item	Imports	Exports
Food	42.2	99.9
Beverages and tobacco	7.6	7.4
Crude materials, inedible	21.7	9.6
Mineral fuels	26.8	2.8
Animal and vegetable oils and fats	1.5	0.6
Chemicals	21.1	1.2
Manufactured goods	53.7	17.1
Machinery and transport equipment	64.8	5.2
Miscellaneous manufactured articles	14.6	11.0
Miscellaneous transactions and commodities	19.7	13.8
	273.7	168.5

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1963.

products to the extent of about 60 per cent. Manufactured goods play only a small role in the export trade, but make up a significant part of imports.

Unlike Scotland and Wales, Ireland has little coal. The Shannon barrage has been built to generate electric power, but resources are too small to be of much industrial value. But in Ireland conditions have been made a great deal worse by the inefficiency and the injustices of English rule; by the corrupt system of land tenure which formerly existed, in which a handful of owners, usually absentee, owned much of the land; by the famine of the nineteenth century, occasioned by the potato blight; and by the large-scale migration of the more able and energetic Irishmen. It is an interesting comment on this that in the

United States Saint Patrick's Day is widely celebrated, and ancient animosities are revived.

Ireland lay formerly on the outer fringe of Europe. It is now a steppingstone in an Atlantic crossing. The development of a transatlantic airport at Shannon, on the lower Shannon river, gave Eire a large transit traffic as long as aircraft found

it desirable to call here, but jet aircraft now usually fly the Atlantic without the necessity of making this stop. Shannon airport is now chiefly known as a "free port." The small, rocky ports of the west coast, of little value for commerce, have a strategic importance, due to their situation far out in the North Atlantic.

Britain's Economy

13

The United Kingdom is the most highly industrialized country of Europe. No less than 78 per cent of its population live in urban areas, and some 45 per cent of its employed persons are engaged in factories or mines. This preeminence was achieved during the nineteenth century, when earlier trends of economic growth combined with a rich natural endowment to make possible the development of factory industries. At this time, too, agriculture, which had hitherto supported a majority of the population and had fed almost all of it, sank to a subsidiary position in the economy of Great Britain. It was considered wiser to allow the free importation of cheap foodstuffs from the "new" countries and so to permit industrial costs to fall than to protect the English farming community. During the nineteenth century British manufacturing industries dominated the world market. Large fortunes were made and large overseas investments were accumulated. But this industrial preeminence could not be maintained indefinitely. Other countries, not only in Europe, but also in Asia, America, and Australia, acquired the technology and built up manufacturing industries. Britain ceased gradually to be the workshop of the world. Now, in the twentieth century, Great Britain is reaching a stage in her economic development when she is faced with foreign competition in her specialized industrial products and can no longer sell her manufactures as easily as she could a generation or

two ago. Agriculture, neglected for the greater part of a century, is now again receiving advice and encouragement from the British government.

INDUSTRIAL DEVELOPMENT

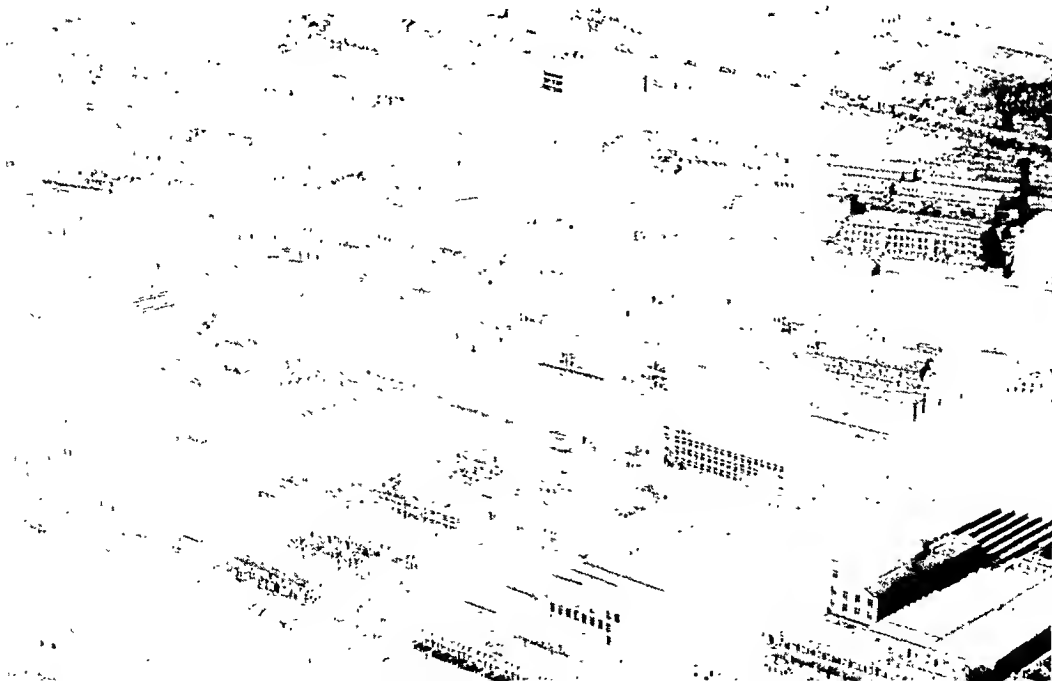
From the Middle Ages England had been the scene of a vigorous industrial development. Her woolen cloth from East Anglia, the Cotswolds, and the west country was exported by the merchant adventurers. Iron was worked for local use, and nonferrous metals were mined and exported. A writer of the fifteenth century complained that the foreign merchants ". . . bare hence our best chaffare [merchandise], Cloth, wool and tin."

To these goods, manufactured cottons and silks were added in the eighteenth century. The ancient iron industry received a great impetus at about this time from the introduction of smelting with coke. The invention by Cort of the puddling furnace and by Nielsen of the hot blast in smelting put England in the forefront of the world's metallurgical industries. At about this time, too, a revolution was taking place in the textile industries. The spinning industry, both woolen and cotton, came gradually to be mechanized, and mechaniza-

tion spread to other stages in the manufacture of textiles. Above all, the steam engine was invented early in the eighteenth century and was continuously improved during the years which followed. Early in the nineteenth century England was the scene of the first railroad to be built.

England was well placed to benefit from these developments. Her abundant coal provided cheap power for her machines and coke for her blast furnaces. The beginnings of certain industrial concentrations were apparent before 1800. After the end of the war with France in 1815 industrial development proceeded apace. As coal was the basic requirement, this development took place on or close to the coalfields. Ancient centers of the iron industry, such as the forests of Dean and Shropshire, and the Cotswold and East Anglian textile areas either declined in importance or ceased to exist as centers of industry. During the nineteenth century other branches of industry—the chemical, paint, and paper industries as well as the processing of foodstuffs—became important. In some instances these moved toward the older industrial centers; more often they were located at the great ports through which the raw materials were imported. During the twentieth century a

The old . . . the cottonmill town of Preston, Lancashire. Note the large, multistory brick factories, the forest of tall chimneys, and the rows of small houses built for the workers. (Aerofilms.)



conspicuous shift in the centers of industry has become apparent. Those industries which were basic in the nineteenth century have declined in relative, some of them in absolute, importance. Reliance is no longer placed exclusively on coal for power. Instead, electric power, generated by burning coal or gas or from nuclear energy, is distributed by cable to places remote from the coalfields. The present trend is, then, toward both a dispersion of industries away from the coalfields and a concentration on the lighter industries.

The older industrial centers, located close to the coalfields, remain of importance: the industrial region of central Scotland, the Cumberland coast, the Northeast, Lancashire, Yorkshire, the Midlands, and South Wales. But new industries are going elsewhere, particularly to the southeast. New forms of power and new sources of raw materials have destroyed advantages of the coalfields. Above all, the decline in the export of some of the old staples, such as cotton, has brought unemployment and misery to several such areas. Such areas were the subject of special inquiry during the 1930s. New industries were deliberately located here, but this has not checked the movement of "new" industries away from the older centers and toward the southeast. "Greater" London has become the most important and most varied industrial region in Great Britain. It is impossible to list its industries. Even iron smelting has been established on the north shore of the Thames below the docks. Ironworks have been set up at Corby, in the ironstone-producing area of the east Midlands, and at Scunthorpe and Frodingham in Lincolnshire, the northward continuation of this same ironstone region. Factories have sprung up along the roads and railroads radiating from London. "Trading estates" have been formed where a group of similar or related factories can be established, sharing transportation and other facilities. In all this we see London, with its population of 8,172,000, and the "new towns," built like satellites around it, attracting industry more and more to its huge market.

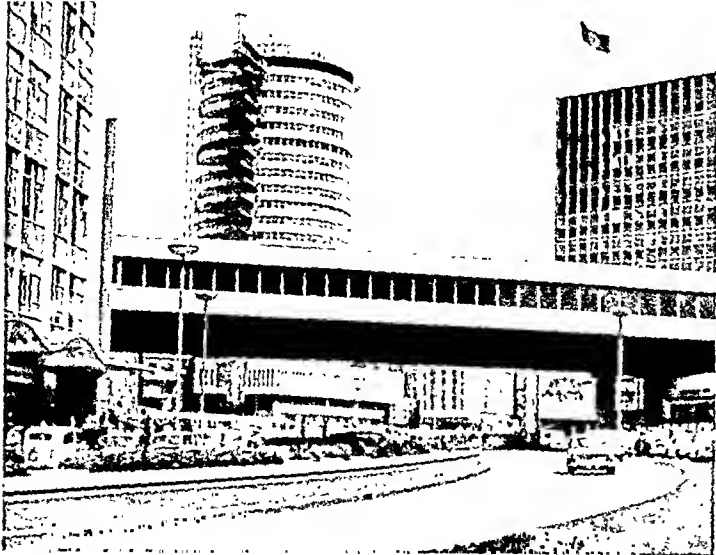
The newest factories in England are models of industrial planning and are as efficient as any. But many industries, including the "basic" indus-

tries of coal mining and textile manufacture, are old. Their buildings and equipment do not conform with the best modern practice, and they compete with difficulty with the newer industries in other lands. The report of a commission which examined the comparative efficiency of the English and American cotton industries in 1944 remains in some degree true: "There need be no hesitation in saying that the U.S. industry is very far ahead of the Lancashire industry in production per man hour. At the same time it would be correct to say that there is no reason to suppose that the skill of the operatives of Lancashire is one whit inferior to that of the U.S.A. operatives. On the contrary everyone of us felt that the ability of the Lancashire cotton operative remains unsurpassed. The whole question at issue therefore resolved itself into one of mechanical efficiency or otherwise, and here we were quickly convinced that the U.S.A. has great superiority. The machinery employed throughout is more modern, methods about which our industry is in doubt have become general practice, and automatic machines are far more readily adopted and absorbed."¹

A report on the coal industry commented at about the same time that "the technical conduct of the British coal-mining industry seems to have been carried on without any radical changes in the practices long established in the various coalfields."² It added that "the individualism of a large number of self-contained units was unlikely to encourage major developments in the science of mining." It called for an integration and rationalization of production to meet the competition of Poland and other coal producers as well as the competition of newer forms of fuel. In many industries the challenge has been met, and, under government supervision or control, the small and outmoded factories and mines are being closed and replaced by larger and more efficient ones.

¹ Report of the Cotton Textile Mission to the United States, Ministry of Production, London, 1944.

² *Coal Mining*, Report of the Technical Advisory Committee, Cmd. 6610, London, 1945.



And the new . . . the city center of Birmingham, rebuilt after its destruction by air raids in the Second World War. (N. J. G. Pounds.)

These examples may serve to illustrate a general problem. The critic argues that, since British industry formerly made large profits, more should have been plowed back in new capital equipment. This was not always possible, and in the full tide of success few pause to think of the hard times that may follow. Britain's position was deteriorating before the Second World War, but was disguised by the "unearned" income from overseas investments. Many of these were lost during the war, and when it was over, Britain was left exposed to the harsh competitive situation from which she had hitherto been protected.

POPULATION

The population of the United Kingdom is made up as shown in Table 13-1 (figures for 1961). There has in recent years been a slow movement of population away from the older industrial centers, especially in Wales, Scotland, and northern England, and an increase of population in the

TABLE 13-1

England	43,430,972
Wales	2,640,632
Scotland	5,178,490
Northern Ireland	1,425,462
Channel Islands and Isle of Man	152,529
Total	52,828,085

London region and the east Midlands. Many of the older industrial cities, especially those in Scotland, lost in population between the censuses of 1951 and 1961. Most of the larger cities have been described as lying within an hourglass figure, which expands over the southeast of England and over the Midlands, southern Lancashire, and the West Riding of Yorkshire.

AGRICULTURE

For a century agriculture has been of secondary importance. It now employs less than 4 per cent of the total employed persons, and the area under cultivation has visibly contracted in the less-fertile areas of the north and west. An increasing proportion of the food requirements of Britain came to be satisfied by imports, which, in general, were cheaper than home-produced foodstuffs. The earlier emphasis on grain crops gave place to an emphasis on dairy, fruit, and vegetable farming, with which overseas countries could compete less easily. Two wars, during which Britain's food supply was gravely jeopardized, have demonstrated the folly of allowing agriculture to take its own course. Attempts are being made to support crop farming in Britain by means of monetary grants to farmers and price supports. Nevertheless the area under crops has declined steadily in recent years, and in 1961 amounted to only 30 per cent of the total area.

The study of the agricultural geography of Britain is greatly assisted by the completion before the Second World War and publication of the

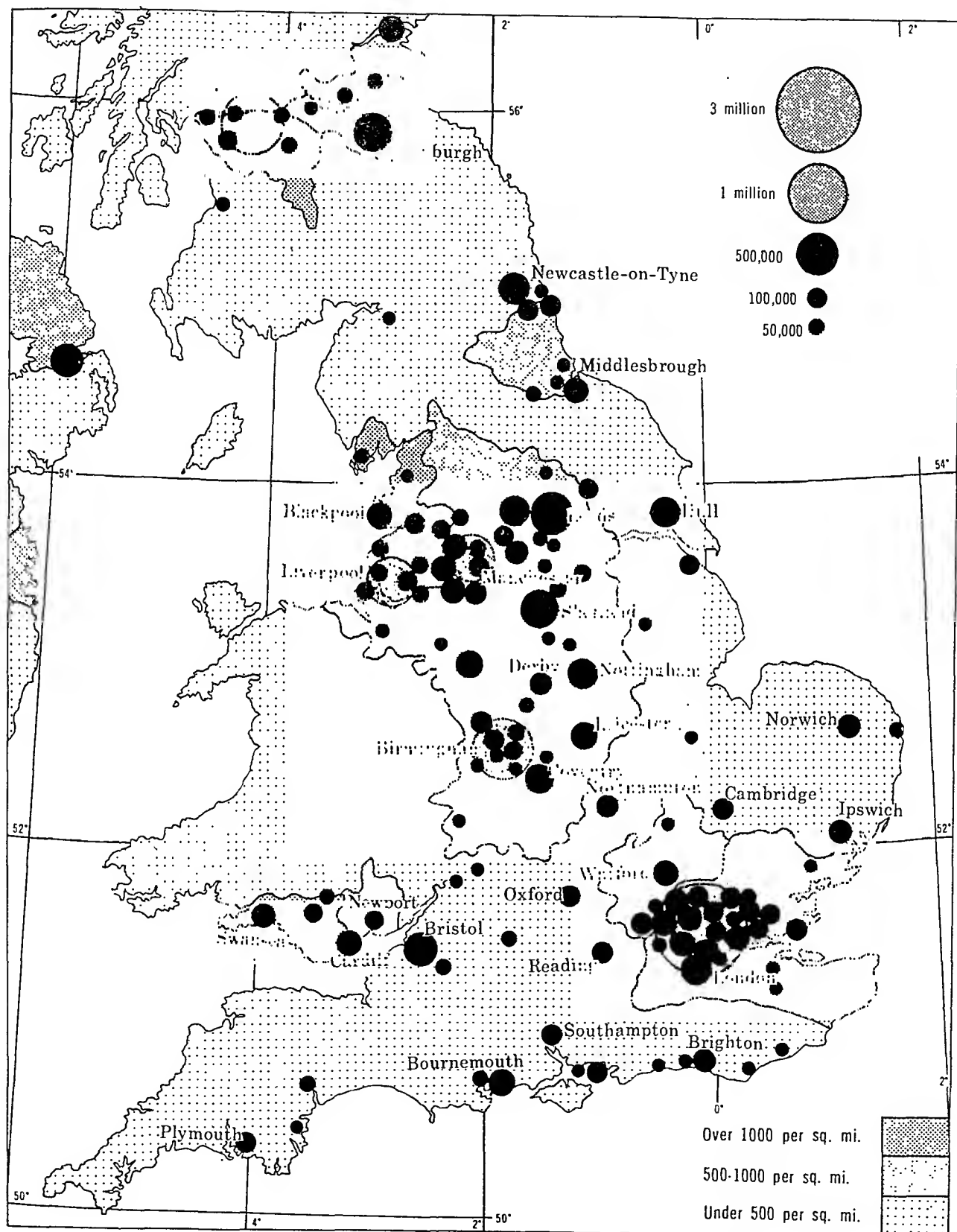
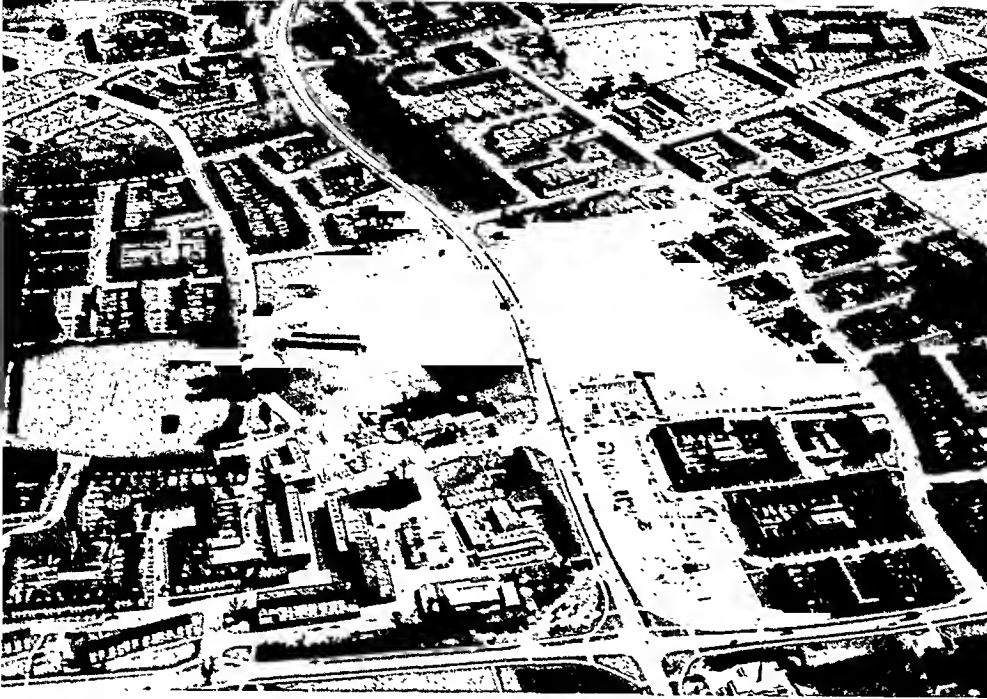


FIGURE 13-1. Distribution of population and of the larger cities.



The "new town" of Harlow, Essex, to the north of London, was planned to help ease the pressure on London for housing and industrial space. (Aerofilms.)

Land Utilisation Survey (see Bibliography), a series of maps on a 1-inch scale, on which the land use is shown by distinctive coloring. Preliminary sheets have now been published of a more ambitious survey on the larger scale of 2.5 inches to the mile, in which the categories of land use are further refined. As a general rule it may be said that the damp west together with parts of the clay lowlands in the Midlands and the south are given over mainly to pastoral farming. Crop farming predominates in the drier east and on the lighter soils in other areas. There are, however, many exceptions to this generalization. The immediate neighborhood of large towns is likely to be devoted to trucking, whatever the soil and climate, owing to the heavy demand for produce. Essex, the county in England with the lowest rainfall, is nevertheless a producer of milk for the London market, which adjoins it to the south-east, for liquid milk. Certain sandy areas, particularly in Bedfordshire and Cambridgeshire, are devoted to truck and fruit farming. The southwest of England and the Channel Islands are able, owing to their mild winters, to market produce earlier than other parts (cf. Brittany, page 184) of the British Isles.

Farming in England is carried on in small, compact farms. The size of holdings, which are

sometimes rented, sometimes owned by the farmers, varies with the region and with the type of farming carried on. They are smaller in the dairy-farming country of the west than in the crop-farming region of the east. The overall range of size of farms may be taken as from 50 to 250 acres, though individual farms may run to much greater sizes than this and there is also a very large number of holdings of much smaller size. There were, in 1961, about 345,000 agricultural holdings, with an average size of 70 acres. The material equipment of English farms is generally good. A great use is made of tractors, and the combined harvester has been widely adopted and field boundaries are being removed and fields enlarged to take it. Farm stock is usually good, and considerable care is given in all except the poorest farms to animal breeding and to the use of good seed. Mixed farming is general, and farmyard manure is available for the fields; in addition synthetic fertilizers are much used.

English farming has long since broken with the medieval system of intermixed strips in the open fields, which still obtains in many parts of Europe. Fields, on the other hand, are small and sometimes scattered. Much space is taken up by hedges and ditches, and with mechanized agriculture, an appreciable percentage of each small

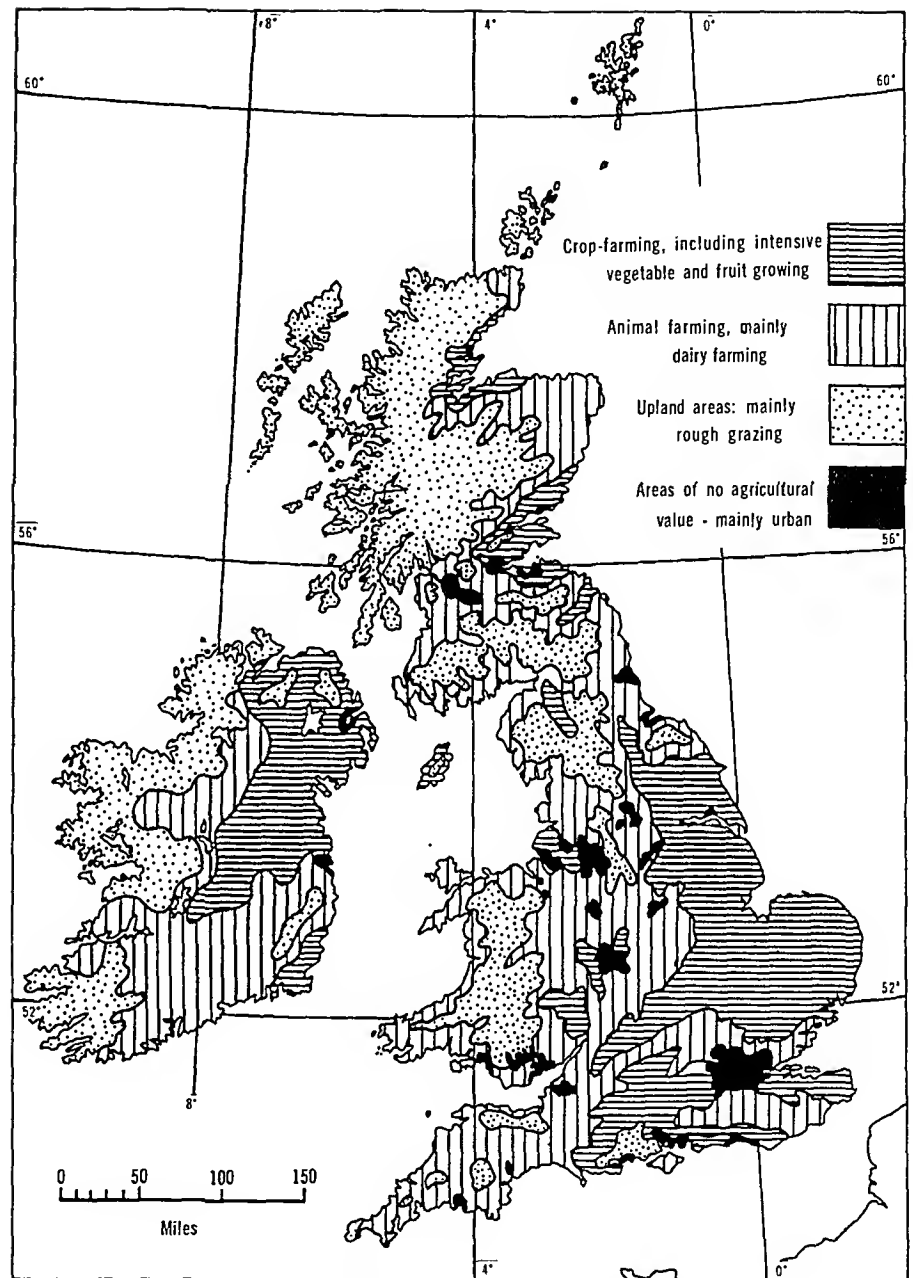


FIGURE 13-2. Generalized land-use map of the British Isles.

field goes uncultivated in the corners and close to the boundaries.

These remarks apply particularly to the Lowland Zone of England. They are less applicable to Wales and southern Scotland and not at all to the Scottish Highlands and Ireland. In the Highland areas crop farming is not generally of much importance. Its yields are small, and its material

equipment less adequate. In the more remote areas, especially of Scotland, conditions are very primitive indeed, and some of the crofts, or small farms, are little removed from subsistence farming.

The nature of the agricultural practice in each region has been indicated in the previous chapter. This data is summarized in the map presented on this page. Crop farming, it will be noticed, pre-

dominates in the east of England and in Northern Ireland. Wheat and barley are grown on a large scale only in the drier east. Oats is a more widespread crop and is relatively important in Ireland and Scotland. Sugar beets are important only in East Anglia and Lincolnshire, where they are grown in rotation with grain crops and potatoes, and where sugar refineries have been built to handle them. Potatoes are more widespread. In the drier regions where the four-course rotation is employed, they are often grown as one course and are used in part as animal fodder. In Ireland they assume a relatively great importance as human food.

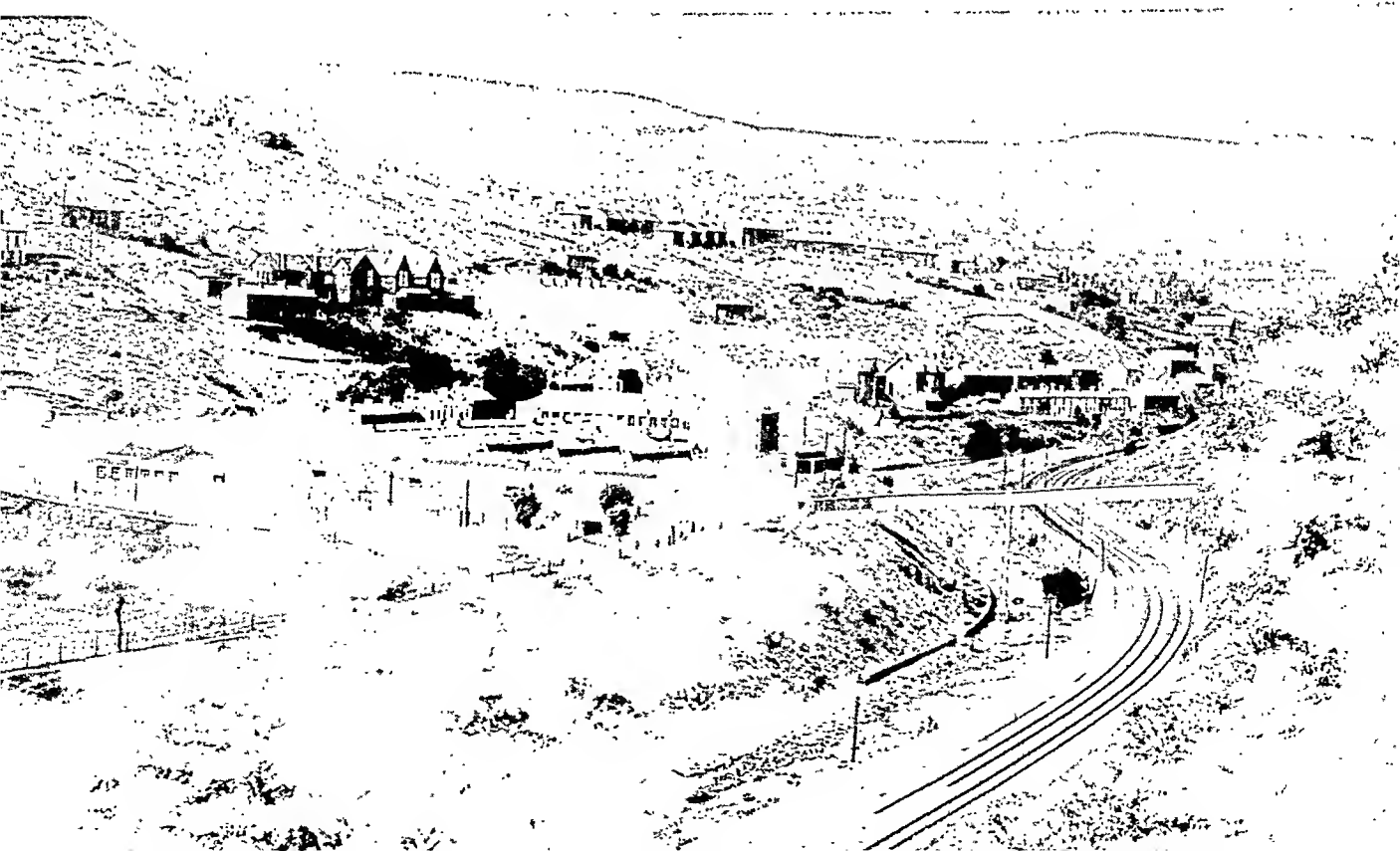
Animal husbandry is very important. Sheep are reared on the hills of the Highland Zone and also on the river lowlands of the south and east. Cattle are very numerous, and there is no part of the United Kingdom where they are not important in the agricultural pattern. They are reared for

beef purposes in parts of the Midland and the Welsh border. Dairying is practiced in every agricultural region and near most large cities, but is of supreme importance only in the southwestern peninsula, in Somerset, Cheshire, and southwestern Scotland.

THE PROBLEM OF LAND USE

Great Britain is small and densely populated and, under present conditions of world trade, wants to get as much as possible out of its agriculture. The problem of the control of land use thus becomes important. It is desirable in the national interest to preserve good agricultural land for the farmer, to allocate only poorer-quality land for housing or industrial works, and to ensure the reconditioning of land that has been strip-mined. This control is exercised through the Ministry of Housing and Local Government, which is itself the judge of

How Green Was My Valley. This is the Rhondda Valley, described in that famous novel. Its sides are bare and scarred by mining, and the valley itself is strewn with the debris of former industries, amid which attempts have been made to establish new factories to employ the local labor. (N. J. G. Pounds.)



what is the best mode of land use. It has had difficult problems. During a period of coal shortage, it has had to choose between the strip mining of coal and agricultural use of the land—as with the open-pit working of iron ore and gravel. Land is not nationalized, but it is no longer possible for the individual to do as he wishes with his land. The land is a resource that must be carefully husbanded. A small country learns this lesson before a large one does.

TRANSPORTATION

The transportation system of Great Britain has been developed to a higher degree of efficiency and intensity than that of any other country in Europe. The railway system, consisting in origin, like that of the United States, of a large number of separate and privately owned railroads, has been absorbed into a state-owned "British Railways." A series of main lines radiates from London, and on these the service is frequent and sometimes fast. There is also a very great number of cross-country lines. Most of the tracks are double, though only a very small part of the system has more than two tracks. Great Britain is faced, like the United States, with the fact that many branch lines are little used; and many have already been closed. In the past, traction has been by steam, but British Railways has now changed to diesel and electric power, thus increasing the oil import and reducing yet more the demand for coal, and the steam locomotive has now disappeared.

The network of main roads also radiates from London. The system of secondary roads is very dense and of an excellent quality except in the remote areas of Wales, Scotland, and Ireland. Most British roads have come to be very congested, with the increase in automobile and truck transport. A beginning has been made with the construction of motorways—four-lane divided highways with limited access. Great Britain may, at some very distant date, have a network of such roads, rather like the United States Interstate System. Their construction, however, is taking yet more land from agriculture.

Canal transport is now of little significance, though England still has a large number of canals. These peaceful waterways wind through the English Midlands, too narrow and too shallow for most modern rivercraft and rarely disturbed by any commercial activity, the resort of the angler and the vacationer. The Manchester Ship Canal and a few of the inland waterways of Yorkshire and the northwestern Midlands are exceptions to the general decay that has overcome canal transport in England.

BRITAIN'S COMMERCIAL SITUATION

Great Britain is an important exporter of manufactured goods and coal, but she is an even more important importer of foodstuffs, raw materials, and other factory goods. The volume of imports always exceeds that of exports. During the nineteenth century, when Great Britain was exporting manufactured goods to all parts of the world, a considerable part of this export was paid for by loans made by British financiers. Britain thus acquired overseas investments, the interest on which helped to pay for the imports. For instance, Argentinean railroads were built with British capital and equipment, and until recently the interest from these undertakings was used to purchase meat and grain from Argentina.

Furthermore, the large merchant marine, before the Second World War the largest in the world, served the needs of many countries besides Britain and earned money in every port of the world. This also was used to purchase imports. Lastly, Great Britain performed services, carried on an insurance business, Lloyd's, of international importance, and operated international commodity markets in tea, tin, and other commodities.

By 1947 the balance of payments had changed drastically. All figures were inflated. Changes in terms of trade were greatly to the detriment of Great Britain. The net earnings from shipping were reduced to small proportions owing to the large losses of British shipping, and the income from overseas investments was smaller.

Britain's deficit on her overseas transactions in 1938 had been 7 per cent; in 1947, it was over

TABLE 13-2. Chief elements in Great Britain's foreign trade, 1962 (In millions of sterling)

Item	Imports	Exports
Food	1,445.59	111.27
Beverages and tobacco	126.14	109.11
Crude materials, inedible	883.94	140.01
Mineral fuels	533.99	146.12
Animal and vegetable oils and fats	41.63	6.70
Chemicals	173.53	343.58
Manufactured goods	668.51	897.89
Machinery and transport equipment	394.76	1,661.84
Miscellaneous manufactured articles	206.17	251.12
Miscellaneous transactions and commodities	17.34	121.75
Total	4,491.61	3,789.38

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1963.

30 per cent. This unsatisfactory economic situation was relieved first by American monetary grants through Marshall Aid, and later by the great increase in Britain's industrial activity and export of manufactured goods. By 1961 it had been reduced to under 20 per cent.

This critical situation has made the relations between the United Kingdom and the Common Market (page 90) of critical importance. The countries of western Europe are among the world's largest purchasers of manufactured goods. Exclusion from the Common Market was thought to result in very considerable losses of sales; participation in it, on the other hand, could lead to the loss of markets in the Commonwealth, and would certainly erode the ties that bind its members together. Nevertheless, in 1961, the British government applied for membership, but as we have seen (page 91), this application was rejected in January, 1963, by means of the French exercise of the right of veto. It is too early to speak with assurance of the consequences of this exclusion.

It appears at the time of writing (October, 1964) that Britain's balance-of-payments problem is again becoming critical. It is possible that membership in the Common Market might have done much to alleviate the situation.

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France

France is as varied in structure and relief as the British Isles. All the east-to-west structural belts of Europe, with the exception of the Scandinavian Massif, are found here, and it has become a commonplace of French geographers that France is the meeting place of most of, if not all, the physical and human elements of Europe. It is a compact country. Its greatest dimensions, about 600 miles, are from the extreme north, where the Franco-Belgian frontier runs down to the North Sea, to the Spanish frontier in Roussillon and from the Pointe du Raz in Brittany to the Rhine. Of the total periphery of present-day France, some 1,800 miles, 56 per cent, is bounded by the sea. For a stretch of many miles, the frontier follows mountain ranges, the Pyrenees, Alps, and Jura. It is far from true to say that the frontier here is unambiguous and admitting of no dispute. There have been prolonged quarrels regarding all of it, but these are insignificant beside the difficulties that have attended the formation of the frontier that runs from the northern end of the Jura to the north coast. For about 110 miles it follows the Rhine, then takes a course approximately in a northwesterly direction, skirting the valley of the Saar (*F*: Sarre) and the upland massif of the Ardennes to end in the populous plain of Flanders.

France is made up of a substructure of ancient rock, hidden over much of its area by later deposits. Nevertheless, the older rocks are exposed by the denudation of the younger beds and appear in the Breton Massif, the Vosges, the Ardennes, and the large and complex Central Massif. Coal measures are associated with the ancient rocks and have been preserved in a number of small faulted basins in the Central Massif. Coal also occurs on the edge of the Ardennes and in the Saar and Moselle (G: Mosel) valleys, and in northern France the coalfield of Belgium is continued beneath the shallow cover of later rocks.

Around and between the areas of older and harder rocks are younger, softer, and more fertile beds. These resemble closely the limestone, chalk, and clay of the English Plain, with which, in fact, they were once joined across the Channel. As in Lowland England, the beds of limestone and chalk tend to form ridges or plateaus, and the clay gives rise to the intervening valleys and plains.

Toward the southeast and south these younger beds are strongly folded. They rise first into the crumpled folds of the Jura Mountains and then into the folded and overfolded ranges of the Alps and Pyrenees.

Most of France belongs to the moist, temperate region of northwestern Europe, and only the coastal lands of the southeast fall within the Mediterranean region of summer drought. The range of temperature becomes greater toward the east, and the winters more severe. In the west the rainfall shows a winter maximum, but toward the east the summer maximum, characteristic of central Europe, begins to appear. The narrow Mediterranean region of the south has a light winter rainfall and summers which are generally dry and hot.

The aspect of France, as of England, is in large measure man-made. Little trace remains of its primitive vegetation cover. Most of France was once covered with deciduous woodland, with oak, elm, beech, and on the lower ground, willow and poplar. Conifers grew on the mountains and also on the dry gravel and sandy drained area of the *landes* of Aquitaine and the coniferous forests of the hills of eastern France. Little forest remains

in the moist lands of the north and northwest. Here the landscape has the ragged appearance produced by small fields surrounded with thick hedges set with trees. This is what the French call the *bocage*. They contrast the *bocage* with the *champagne*, the rolling, treeless, hedgeless country, where fields are large, where fences are insubstantial, and where the cultivated strips of the peasants are mixed in a medieval pattern. The *champagne* is found on the limestone and chalk and on the more recent deposits of the Paris Basin. It is good farming country. In the Middle Ages it was apportioned in large estates cultivated by serfs or other unfree workers. The *bocage* land of the west was harder to cultivate and yielded poorer crops. The open fields were few, and there were, instead, the small holdings of a poor but relatively independent peasantry. The medieval cycle, the "Roman de rou," contrasts

*"Li paisan et li vilain,
Cil des bocages et cil des plains."*¹

BRETON MASSIF

The Breton Massif is a very much larger region than the ancient province of Brittany; it extends over western Normandy and southward into Anjou and La Vendée. On this account it is sometimes known, from the ancient name for this part of France, as the "Armorican Massif." In its structure the region bears certain resemblances to the southwest of England. It is built up of ancient rocks, folded into a broad and complex trough, whose northern and southern margins give rise to lines of low, rounded hills. The land has no great heights or steep slopes. Granite and other hard rocks form hills which rise gently from broad, shallow lowlands. Unlike the more open *champagne* lands of the Paris Basin, the Breton region is characteristically one of *bocage*. Its fields are small and surrounded by hedges. Small plots of woodland are common, and the aspect is one of a rich and thick vegetation covering land forms that are predominantly rounded and mature. The

¹ The peasant and the villein (serf); the former belongs to the *bocage*, the latter to the plain (*champagne*).



Landscapes of France: the dry, rolling plains of Champagne. The chalk rock yields a light soil, and its dryness restricts tree growth. This photograph was taken southeast of Rheims. (N. J. G. Pounds.)

coastal regions are more exposed to the Atlantic gales than is the interior. Trees are fewer, and many areas, such as Finistère, are virtually treeless on account of the violence of the wind. The sea cliffs are steep; the lower courses of the rivers are incised and frequently terminate in long branching estuaries or rias, such as the Rade de Brest, which form the harbors of the Breton fishing towns. The coastal region has a ruggedness which is in sharp contrast to the smoothness and maturity of the inland region.

The high rainfall and the mildness of the temperature render the region more suitable for pastoral than for crop farming. Although early vegetables are grown in sheltered areas near the coast for sale in the Paris market, dairy farming is the predominant agricultural pursuit. The south coast is warmer and more sheltered than the north, and more important in the growing of early vegetables. Fishing is carried on from the coastal villages. Along the south coast of Brittany the sardine fisheries are important, and sardine canning is practiced in certain of the coastal towns.

Brittany in the more restricted sense is the hilly western peninsula, where the ridge and vale topography is particularly strongly developed. Brest (136,100),¹ the French Atlantic naval base, is the largest town. Lorient, a small port at the mouth of the Blavet, was established in the seventeenth century to handle France's trade with the Orient but has long since been replaced by other ports more favorably situated in relation to the centers of French industry and population. Around the coast are innumerable small and picturesque towns, which depend for their existence on fishing, agriculture, and the tourist trade. At the base of the Breton peninsula the river Vilaine has excavated a broad, lowland plain, in which lies the Breton capital, Rennes (157,000). The climate is drier here than in the Breton peninsula, and

¹ The population in 1962 is given for cities of over 50,000. Not all cities of this size, however, are named in the text. In each the population is of the "conurbation," not of the city proper.

crop farming becomes more important. Yet farther east, the relief is stronger and the rainfall heavier. Dairying again becomes the more important branch of agriculture, towns are few, and population relatively sparse. To the north is the low Cotentin peninsula, like Brittany exposed along its cliff-fringed coast to the violence of the Atlantic. Cherbourg has developed on its northern

coast as a port of call for Atlantic liners but handles very little cargo.

Near Angers (see page 190) the river Loire leaves the Paris basin and enters this region of ancient rock. The aspect of the land changes. Viticulture disappears, and *bocage* replaces *cham-pagne*. Angers (134,000) itself has, with its ancient fortifications, the character of a frontier town but

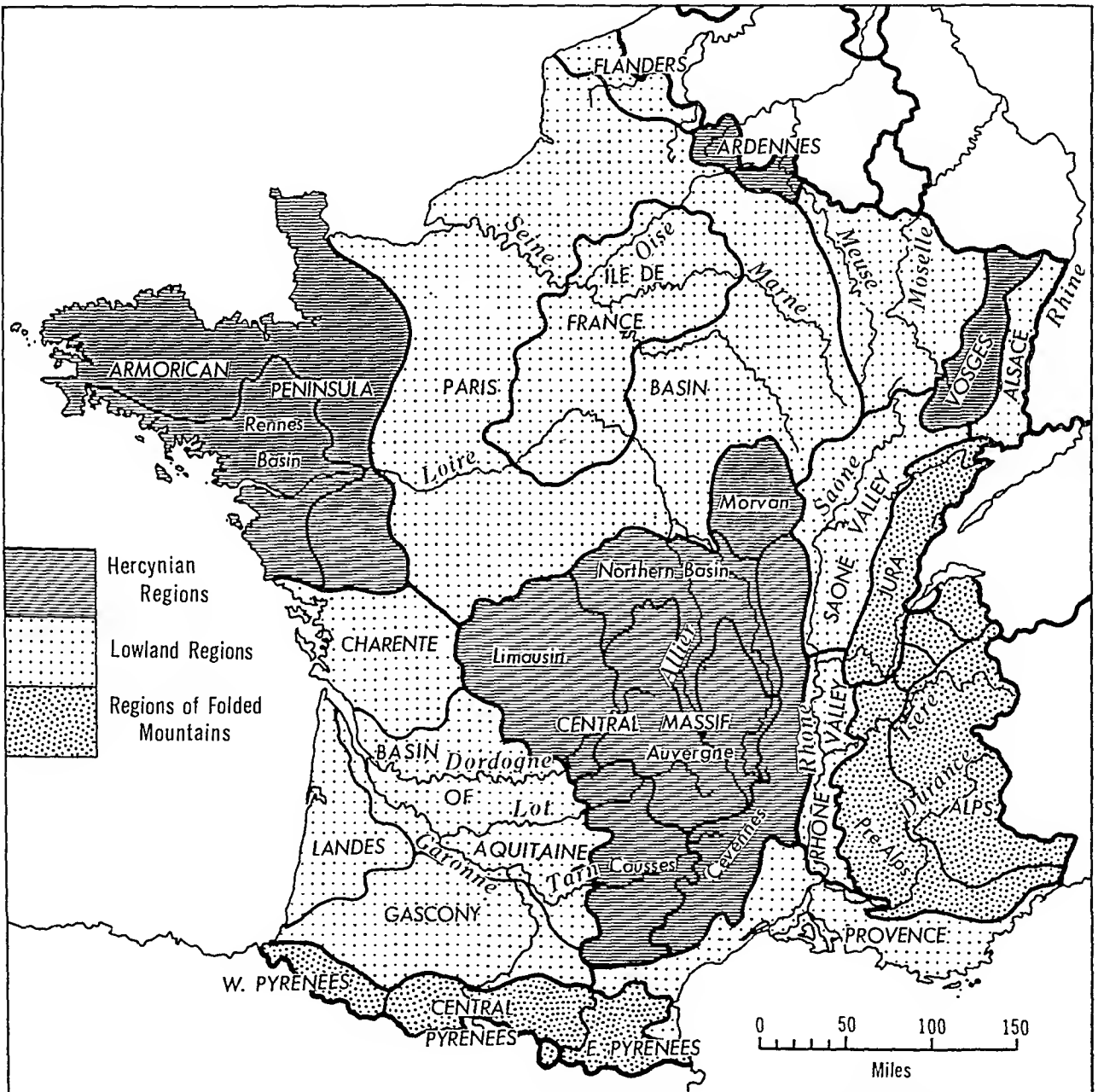


FIGURE 14-1. France: landform regions.

has developed a number of modern industries. Nantes lies at the head of ocean navigation, but the Loire is a difficult river; only the smaller vessels succeed in reaching the town and then only with the help of lateral canals. Nantes (328,000), like Lorient, formerly had an important colonial trade. Saint-Nazaire has inherited certain of the commercial functions of Nantes but is not primarily a commercial port. It is the most important French center of the shipbuilding industry. South of Nantes is the district of La Vendée. In the center it rises to the infertile hills of the Gâtine, but on the west and south it drops to lowlands in which the grape and other crops that demand warmth and sunshine begin to appear. On this side the Breton Massif merges gradually and imperceptibly into the warm, rich lowland of Aquitaine (page 192).

PARIS BASIN

Within the semicircle formed by the four massifs (the Breton, the Central Massif, the Vosges, and the Ardennes), is the Paris Basin, equal in area approximately to West Virginia. Topographically the region is made up of a number of concentric rings of higher ground, built of limestone, chalk, and sandstone and separated from one another by clay-floored depressions. These beds dip toward the center of the Paris Basin and resemble in their structure a series of saucers of diminishing size, set one inside the other.

On the southwest the Paris Basin extends into the valley of the Loire, on the east into the valleys of the Meuse and Moselle; the northern margin is drained by the Somme and by other short rivers which flow directly into the English Channel. Nevertheless, the Paris Basin is essentially that of the river Seine and of its tributaries, the Oise, Marne, Yonne, and Loing. These have their sources near the margin of the basin and flow toward its center, crossing the alternate ridges and valleys. They unite in the neighborhood of Paris, and the Seine bears their water northwestward to the sea.

The Île-de-France is the name given to the region in which the city of Paris lies. It is an

island only in the sense that it is, at least on the southeast, east, and northeast, bounded by a scarp. This *falaise*, or "cliff," of the Île-de-France is formed by the steep edge of a limestone plateau. On the south, this plateau thins away through Sologne, so that no physical feature marks its edge. Most of this region has the aspect of a low, dissected plateau, rarely exceeding 600 feet in altitude. Its subsurface is formed generally of limestone, but not the same limestone bed over the whole area. To the southwest of Paris the limestone of Beauce forms a level, dry tableland, over which a thin loam (*limon*, or loess) has been spread by the wind. It is a fertile, wheat-growing region. To the east of the Seine is Brie, similarly capped with limestone. The Brie Plateau is more dissected than Beauce and is, furthermore, covered with a deposit of residual clay. Its soils are heavier, and Brie counts as a dairy-farming rather than as a crop-farming province. Between the two limestone beds already mentioned are the Fontainebleau sands which outcrop to the south of Paris, giving rise to a well-known forested resort area.

The larger rivers rise outside the region of the Île-de-France and flow across it in deeply incised valleys. The Marne enters its valley at Épernay; the Aisne, above Soissons; the Oise, near Laon; the Seine, at Fontainebleau. These rivers converge in the vicinity of Paris. Settlements avoid the plateau surfaces, which are, as a general rule, made up of either dry limestone or infertile sand. They occur rather on the valley sides where springs are thrown out at the base of the limestone beds, and the larger towns lie where the rivers enter or emerge from their incised valleys across the plateau.

The towns of the Paris Basin are small and dwarfed by Paris itself. Paris (6,524,000; the City proper, 2,790,100) lies on the Seine a mile or two below the confluence of the Marne. The early town grew up on an island in the Seine, the Île de la Cité. The site was occupied by the Romans; it was later fortified, and Paris was successfully defended against the Norsemen, who were able to sail this far up the Seine in their long boats. It then became the chief seat of the kings

of France, and at the end of the twelfth century, the city embraced also a considerable area of land on both banks of the Seine. At this point a low hill, the Montagne Sainte Geneviève, advances close to the river from the south, while on the north, a flat semicircular plain—an ancient meander plain of the river—is bounded by a range of low buttes. The town spread quickly over the flood plain of the river, which, early in the seventeenth century, was almost wholly enclosed by the walls of the town. The nineteenth-century defenses embraced the whole of the buttes to the north of the city and the low hills to the south. Above Paris the river narrows; below, it remains navigable today for the smaller craft. At a time when much of the commerce was river-borne, Paris commanded a position of great importance. It acquired a commercial strength which it has been able to retain, even though the rivers are now of relatively small value. Paris also became a railway center. There are no fewer than seven railway terminals, from which lines radiate to all parts of France.

The region of the Île-de-France is well suited to support a great capital. The limestone of Brie and Beauce and the gypsum of Valois have contributed to its architectural beauty. Truck farming has spread up the Seine and Marne Valleys, and dairy produce is obtained from the pasturelands of Normandy and Brie, and grain from the plateau of Beauce. Paris has been, since the Middle Ages, a center for skilled craftsmanship. It has now become the most important manufacturing area of France. With the location in Paris of the chief offices of government and the erection nearby of many of the palaces of the French kings and nobility, Paris developed as a manufacturer of "quality" goods. It is outstanding today as a source of clothing, jewelry, leather, skins, paper, glass, chinaware, and perfumery, much of high quality and destined for a luxury market. Many of the goods are handmade, but in recent years Paris has become also a center of heavy industry. The heavy industries are dependent upon water and rail transportation, and many are of a kind that benefit from the publicity resulting from a location in the capital. Automobiles, airplane

engines, machine tools, and electrical equipment are outstanding among its products. Paris is also a center of clothing manufacture and of the printing and publishing industry. Oil refining, rubber manufacture, and the preparation of nonferrous metals, cement, and artificial fertilizers do not exhaust the catalog of Paris industries but indicate their variety.

Paris has the advantage of excellent means of communication and transportation. Railways radiate to all parts not only of France but of western Europe. The Seine waterway has been deepened, made navigable, and supplemented by canals. It is in water communication by barge not only with Rouen and Le Havre but also with the industrial regions of the north and east and with the Loire and Rhône systems. The luxury industries are in large measure located in the inner parts of the city. This is in itself an indication of their greater age. The newer industries were established on the outer, expanding fringe of the capital. The aircraft, automobile, and chemical industries are carried on very largely to the west and north, along the banks of the meandering Seine.

In acquiring its industrial significance Paris has lost none of its older charm and beauty. The cathedral of Notre Dame, the Sainte Chapelle, and the other old buildings of the island; the tree-lined banks of the Seine, where secondhand books and goods are sold in the little booths; the Louvre, once a royal palace and now an art gallery and museum set in the Tuileries Gardens; other palaces, the Luxembourg on the Montagne Sainte Geneviève, and Versailles, a few miles to the west; then the spacious and dignified Paris that was laid out by Haussmann in the nineteenth century; the Champs Élysées and the boulevards which converge at L'Etoile all contribute to the fascination of the city.

The chalk region encircles the plateau within which Paris lies, in a broad belt from the coast south of Calais, through Artois, Champagne, Touraine, and Anjou, to Normandy. In parts it forms a dry and dusty plateau stretching unbroken to the horizon; in others its true nature is masked by a superficial deposit of residual clay. Deep valleys have been cut into the chalk surface. A

number of minor folds have produced low ridges in the northern part of the chalk area and have imparted a southeast-to-northwest direction to several of the rivers. In two places, the chalk has been stripped from the crests of such ridges. The "Weald" of Boulonnais reaches inland from the neighborhood of Boulogne (91,000) and appears to continue across the Channel from the Weald of Kent, which in structure and appearance it closely resembles. Bray, to the northwest of Paris, is another example of such a stripped upfold.

The chalk of the northern part of the Paris Basin is drained by deeply incised rivers which flow in straight valleys to the English Channel. In the north is the dry ridge of Artois, where the chalk, covered by a fine loam, yields a rich dry soil and produces heavy crops of grain. To the southwest the chalk continues in Picardy and Caux. Along the coast are white chalk cliffs; inland, the undulating tableland of Picardy lies open and bare of all except the growing crops. The villages lie in the valleys and in the hollows of the ground; the strips of arable land are unfenced. This is true *champagne*, and its monotony is often broken only by the lines of tall trees that border the *routes nationales* as they run straight across the country. The heavier soils of Bray and Boulonnaise support a richer growth. Here hedges and patches of woodland announce the approach of the *bocage*, which becomes more widespread farther to the west. The valleys in the chalk often have heavy soils and are ill drained; the Somme Valley is very famous for its irrigated vegetable gardens. Towns lie in the valleys.

Abbeville, Amiens (113,000) and Saint-Quentin lie on the Somme; Beauvais, with its spectacular Gothic cathedral, is in Bray. On the Seine, where it flows in broad meanders deeply incised in the chalk, lie Rouen and a number of lesser industrial towns that have grown up nearby. Rouen (325,000) is reached by seagoing vessels and was in the past an important coal port which handled the once-considerable import from England. It also imports cotton in large quantities not only for the mills of the district of Rouen itself but also for textile centers in the east of France. Along the river have grown up a variety of in-

dustries which depend upon the import of bulky goods and use the river as a source of power. But larger vessels and those making only brief calls to discharge or take on part cargoes dock at Le Havre. Le Havre (223,000) was founded by the French King François I early in the sixteenth century, and it grew to importance with the increasing size of ships and the greater difficulty in navigating the tortuous Seine.

To the east of Paris the belt of chalk is narrower than in the north, but drier, more regular, and less broken by valleys and hollows. This is the plateau of "dry" or "dusty" Champagne, *la Champagne pouilleuse*. On the west it is overlooked by the Brie Plateau; on the east it rises to a low scarp which overlooks the clay vale of "wet" Champagne, *la Champagne humide*. Reims (144,000) lies near its western edge; Châlons-sur-Marne and Arcis-sur-Aube in the valleys of through rivers; and Rethel, Vitry-le-François, and Troyes (100,000) where these rivers pass from the low plain of wet Champagne to the narrow valleys of dry Champagne. The vintage for which Champagne is chiefly known is produced from grapes grown on the sunny, south-facing slopes of the deep valleys and on the scarps of the Île de France, where it looks out over the plateau of Dry Champagne. To the south the chalk beds rise in the Forêt d'Othe to a high scarp. They then thin away and are covered by beds of sand and clay, producing the damp, wooded slopes of the Gâtinais and the sandy, lake-strewn waste of the Sologne.

Northward from the Loire to the coast of Normandy is a broad belt of chalk, which rises in the hills of Perche and Normandy to heights of well over 1,000 feet. Patches of clay and sand lie scattered over the chalk surface. This, coupled with the heavier rainfall, renders the aspect of the region less dry and bare. In many parts it is *bocage* rather than *champagne*. Damp meadowland spreads over the lower ground, and even on the chalk heights there is often a heavy soil suited rather for dairy than for crop farming.

The chalk region in its turn is partially encircled by the limestone. The limestone beds are separated by clay. They dip toward the center of

the Paris Basin, and erosion has produced a series of limestone ridges separated by clay-floored valleys. The ridges are steep toward the east and south and gentle toward the center of the basin, and their configuration has been of some importance in the military defense of the approaches to Paris.

The valleys are generally damp and poorly

drained, more suited to pastoral than to crop farming. The limestone scarps are dry, with a poor soil, and the whole of this scarp-and-vale region is sparsely peopled. The Argonne, built of sandstone and more moist than the others, and the Côtes de Meuse form conspicuous ridges, but the highest and the most extensive is formed by the Côtes de Moselle. From southern Belgium

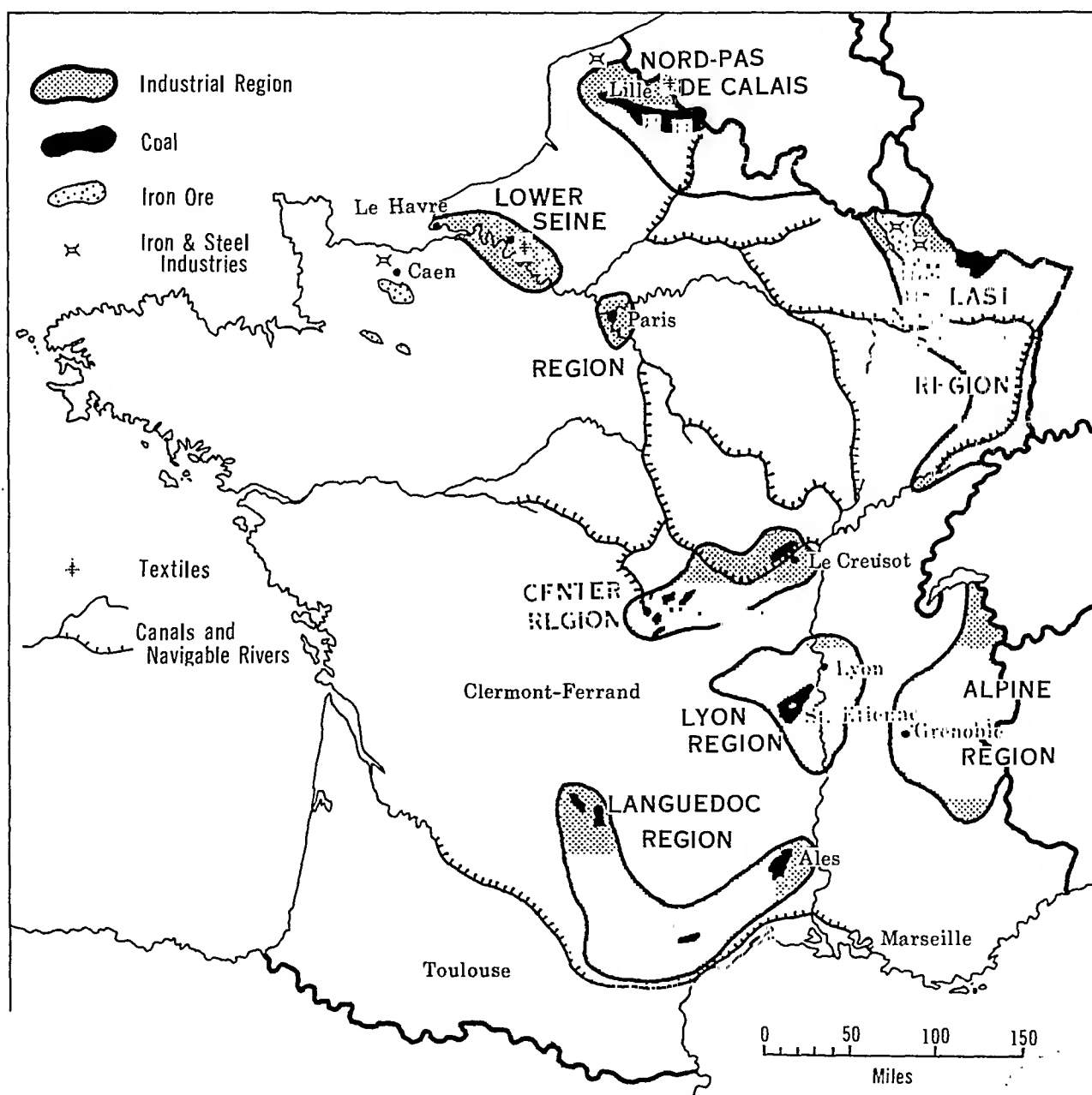


FIGURE 14-2. France: industrial regions and principal branches of ind

it extends southward as a high, broken, and indented scarp front which rises like a wall above the Moselle Valley and the plateau of Lorraine and the cities of Metz (147,000) and Nancy (209,000). It broadens southward into the plateau of Langres, and its richly colored limestone rises in the steep Côte-d'Or above the vineyards of Burgundy. The limestone plateau is exposed and bleak, the climate is more severe than on the lower plateaus farther west, and the region is even less populous. It contains, however, in its northern part rich deposits of minette iron ore which underlie the limestone. These constitute the most abundant resource of iron ore in western Europe and one of the largest in the Old World. In 1960 the mines of eastern France produced about 20 million tons of ore (metal content). In terms of metal content Lorraine now produces about 40 per cent of the total European output of ore (the U.S.S.R. excluded) but its relative importance is somewhat reduced by its low metal content of about 30 per cent.

The metallurgical industry of eastern France is now concentrated in the Moselle Valley, between Nancy and Thionville, and in the neighborhood of Briey, a few miles to the west. This area produces over three-quarters of the total French production of both pig iron and steel. The furnaces lie either along the Moselle, at the foot of the limestone scarp, or in the valleys cut in the limestone plateau. The region produces mainly crude iron and steel, and the finishing industry in Lorraine is relatively small. Coal is obtained from the Saar coalfield and its continuation in Lorraine at Saint-Avold, but metallurgical coke, for which this coal is only partly suited, is imported from the coalfields of western Germany. The Moselle, which drains this region to the Rhine, has now been made navigable, and the first barges carrying coal and ore passed through in 1964. This will make even more intimate the already close ties between Lorraine and the Ruhr.

Between the limestone scarp and the Vosges Mountains is the plain of Lorraine, a damp, clay-floored region, sufficiently high above sea level for its climate to be appreciably cooler than in lower regions to west and east. Its surface is

studded with small lakes. There are large areas of woodland, and agriculture is concentrated on rearing animals and growing fodder crops. Toward the south and west the limestone beds cease to form a regular and continuous scarp form. Instead, the whole region is one of rounded hills and broad, open valleys. Woodland occurs on the clay and sand, vineyards clothe the sunny slopes, and the more fertile areas are cultivated for grain.

The Paris Basin, as it has been described here, is larger than the area which is drained by the Seine and its tributaries. It embraces also the central valley of the Loire and part of the Meuse and Moselle Valleys. The Paris Basin has been the scene of numerous river captures; it is probable, for example, that the Loire formerly continued its northward course to join the Seine. At the same time the Seine and Moselle have drawn away tributaries from the Meuse, and the most striking example of river capture is that whereby a former tributary of the Meuse was tapped at Toul and made to flow east to join the Meurthe near Nancy and thus to make the river Moselle.

The Loire enters the Paris Basin near Nevers and flows directly across the limestone and chalk before making a conspicuous bend near Orléans (126,000) and flowing west through a broad and fertile valley. At Angers, the Loire leaves the Paris Basin and crosses an area of hard and ancient rocks to the sea. Along this rich valley is a succession of towns, many of them early centers of trade and wealth, which they show now in their cathedrals, castles, and rich domestic architecture. To the tourist this is the "Châteaux Country," where the kings and princes of France built their Renaissance palaces which are today among the foremost of France's treasures of art and architecture.

The Meuse flows from its source in the limestone of the Langres Plateau across ridges and vales and then follows a deep, narrow valley cut into the Côtes de Meuse and parallel with their scarp edge. It has few towns of importance. Verdun is a military center because it commands routeways across the ridges east and west of the city. The Moselle and its tributary, the Meurthe, rise in the Vosges and cross the plain of Lorraine:

after their junction near Nancy the Moselle flows parallel with the Côtes de Moselle toward Germany and its deeply incised valley across the Rhineland Plateau. Nancy, on the Meurthe, is a former capital of Lorraine, a city of great beauty and interest, and a center of engineering, chemical, and other industries.

FLANDERS AND THE NORTHERN INDUSTRIAL REGION

North of the downs of Artois the chalk dips beneath the sand, clay, and peat of the Flanders Plain. This low, flat region of intensive agriculture passes imperceptibly into drier land of slightly greater elevation, with a covering of loess. East of the city of Valenciennes this region rises gradually through the damp meadows, pastures, and woodlands of Thiérache to the Ardennes. Not only is the whole of this region one of rich and varied agriculture; it contains the most important coal-field of France. Although the coal measures do not reach the surface they support a number of coal-mining and industrial towns, centers for textile and metallurgical industries.

In some respects the industries of this region are a continuation of the medieval cloth industry of Flanders. The region was well served by roads from early times. It produced flax and wool; it was richly productive, wealthy, and populous, and had most of those natural advantages which help to locate a great industrial region. The northern industrial area has never shown a narrow specialization. Most branches of the textile and metallurgical industries are carried on, sugar is refined, pottery and glass are made, carpets are woven, and a great variety of goods of lesser importance are produced.

The textile industry is largely restricted to the vicinity of Lille, though there is a secondary center of cloth manufacture in the small towns of the upper valleys of the Scheldt and Sambre.

The woolen industry is carried on most actively at Roubaix (340,000) and Tourcoing (89,000), both now parts of a large conurbation with Lille (431,000). Roubaix tends today to concentrate on dress fabrics, while carpets, tapestry, and harder-

wearing cloth for furnishings are made at Tourcoing. In Thiérache and Cambrésis, which lie to the southeast, are a number of old but still very small centers of the woolen-cloth industry.

The cotton industry is modern in comparison with the woolen and was not present on any considerable scale in northern France until early in the nineteenth century. It has spread, very largely at the expense of the linen industry, but its focus remains the town of Lille itself. Spinning is more important than weaving, and there is an export of spun thread to weaving industries in other parts of France. Lace, embroidery, and tulle are also made in a number of small towns of northern France. The cultivation of flax and manufacture of linen have long been staple industries of French Flanders. Though formerly widespread as domestic industries, flax spinning and the weaving of linen cloth are now concentrated in Lille and its suburbs and in the small towns along the Lys Valley. The local production of flax is now supplemented by import from northern Europe.

The metallurgical industry, like the cotton industry, began in the nineteenth century. The region offers the advantage of coal and of easy communications, but iron and other ores have to be imported into the region. The Scheldt, or Escaut, Valley, particularly the region of Valenciennes, has become the most important area within the north French industrial region for production of crude steel. The districts of Lille, Lens, and Douai produce finished-steel goods. There is no iron ore in northern France. The industry has been supplied mainly from Lorraine, but an integrated iron- and steelworks is now being built on the coast near Dunkirk, and will use coal from northern France but ore imported by sea.

Coal mining is important from the most westerly extension of the coalfield at Fléchinelle up to the Belgian border, but the principal area of exploitation is around Lens and Douai. Though this has long been the most important coalfield of France, its annual output is no more than about 29 million tons, supplying less than half the country's needs.

It is difficult to set precise limits for the northern industrial region. The densely settled and

highly industrial area shades outward through small towns and large half-industrial, half-agricultural villages. Communications throughout the industrial region are good. The low-lying and very nearly flat land has facilitated the construction of railway lines and the excavation of canals. Lying between the Ardennes and the sea, is one of the most used routeways in Europe, that from the Paris Basin northeastward through the North European Plain. Dunkirk (*F*: Dunkerque) is its chief port and imports the raw materials and exports the manufactured goods of both its French and its Belgian industrial hinterlands. Dunkirk is linked with Béthune, Lille, and other towns of the industrial north by a system of canals and canalized rivers, and a much-used canal through Cambrai to the Oise joins the north with Paris.

THE BASIN OF AQUITAINE

The limestones of the Paris Basin extend through the so-called "Gate" of Poitou, or Poitiers, into Aquitaine. This broad gap, fully 40 miles wide, separates the Central Massif from the low hills, crossed by the Loire, which form the southerly extension of the Breton Massif. The plain, which broadens to the south, is floored with soft limestone which has been eroded into gentle hills and broad valleys.

In the district of Charente in the north, the chalk and limestone have been arched up in a low ridge which stretches northwestward across the north of Aquitaine and is continued seaward in the Île de Ré and the Île d'Oléron. The limestone and chalk produce a dry surface on which crop farming and viticulture are practiced, but on the areas of clay, meadowland and dairy cattle become important. This is a rich land of market towns. On the coast lie the ancient port and former center of the French Huguenots, La Rochelle, and the modern port, La Pallice, which has been built nearby. The region is important for viticulture, and the production of brandy, to which the town of Cognac bears witness, is a local specialization.

Between the plain and the high plateau of central France is a belt of hilly country consisting of chalk and limestone and crossed by the deep
leys of the many rivers which flow from the

massif to join the Dordogne or the Garonne. The region is too hilly to be very productive, except for the grapevine which is grown on the terraced slopes. In the valleys are market centers such as Périgueux, Bergerac, and Cahors. Toward the south the limestone rises to high, bare, karstic plateaus, known as the Causses, which border the Central Massif (page 195).

The Landes form the coastal region of Aquitaine between the mouth of the Gironde and the foothills of the Pyrenees. They consist of a wide belt of towering sand dunes, blown inland from the shore of the Bay of Biscay. Farther inland is an even wider belt of sandy soil where agriculture is in general impracticable and the infertile soils have been planted with pine trees or are grazed by sheep. The beach is straight and featureless. Most of the little rivers have been dammed back by the sand to make lagoons, and in the whole of this straight coast of 140 miles there is only one opening and only one small port, Arcachon at the mouth of the Leyre. The region is sparsely peopled; its products are pine logs and turpentine.

A vast flattened half cone, known as "Lannemezan," is set against the northern flank of the Pyrenees. It has been built up in recent geological times by the torrents flowing northward from the mountains; it consists of coarse gravel and sand, becoming finer as it reaches lower land toward the north. The soil is poor and stony. The rivers have deepened their beds in the loose deposits, lowering the water table. The Lannemezan is dry and infertile, but fruit growing and viticulture are important on the warm, sandy soils of Armagnac. The towns are small and serve mainly as markets for their surrounding districts.

Gascony is the broad undulating plain which occupies the center of Aquitaine and is drained by the Garonne, the Dordogne, and their tributaries. The soil is rich and intensively cultivated, producing grain, tobacco, fruit, early vegetables, and above all, the grapevine. The largest center of the region is Bordeaux (462,000), lying at the head of the Gironde estuary and accessible to large ships. It has an important commerce with tropical areas, and exports timber and wine. In the southeast, the basin of Aquitaine narrows between the Pyrenees and the Central Massif

and passes into the gap of Lauraguais or Carcassonne. At the western entrance to the gap is the town of Toulouse (329,000), a rail junction, route center, and industrial town.

THE PYRENEAN REGION

The Pyrenees are, like the Alps, a range of folded mountains, and like the Alps, they have a core of hard, crystalline rocks. The range increases eastward in both breadth and height. Toward the west, the mountains are formed wholly of soft sedimentary rock and are comparatively low, and the land forms are rounded. East of the Pic du Midi d'Ossau, the crystalline core comes to the surface and continues without interruption eastward to the Mediterranean. Most of the highest peaks, including Puy de Carlitte, Maladetta, and Pic du Midi de Bigore, are carved out of granite and are rugged and precipitous. The range shows a quite remarkable continuity throughout its length of

250 miles. Passes are few and difficult. Best known of these is the pass of Roncesvalles, through the low western Pyrenees, but more important, because it is the only easy crossing of the crystalline Pyrenees, is the Col de Perche.

The boundary between France and Spain, in general, follows the stream divide; the Garonne is the only north-flowing river which rises in Spain. On the French side, the range is drained by the Garonne, the Aude, and their tributaries. These rise in the snowfields and cirques of the crystalline core of the range and flow northward through valleys which broaden in the soft clays and narrow to pass through the belts of limestone. In some places, the approaches to the central region are guarded by difficult and narrow gorges, inside which the mountainous area tends to form an isolated and self-sufficing unit. The high Pyrenees tend to be a meeting ground for the inhabitants of the enclosed valleys to north and south, and many international treaties have been

Landscapes of France: the Allier Valley in the Auvergne. Lush, well-cultivated valleys are set amid the high, rolling tableland of the Central Massif. (N. J. G. Pounds.)



necessary to regulate the activities of shepherds on the upland pastures which both sides share. The peculiar isolation and unity of the central area here encouraged the survival longer than elsewhere of small political units, of which Andorra has continued to exist until the present.

The French Pyrenees may be divided into three parts. The western Pyrenees consist of low, dissected hills of limestones and clays. The rainfall is heavy, and the region is well forested with deciduous trees. The central Pyrenees display the features, such as cirques, overdeepened valleys, and arêtes, of an intensively glaciated mountain region. The region is one of sparse pastoral population, but in recent years the torrents which rush northward have been harnessed to generate hydroelectric power, and as in the Alps of Savoy, a number of electrochemical and electrometallurgical industries have been established. The crystalline Pyrenees continue eastward to the very shores of the Mediterranean. Between the eastern spurs of the Pyrenees lies the small, fertile plain of Roussillon. It has belonged to Spain and to France in turn, but since 1659 it has been French, though its language and customs are more Catalan or Spanish than French. The northern border of the Pyrenees consists of young, soft rocks. It forms a series of east-west ridges, usually of limestone, cut into sections by northward-flowing rivers. Some of these valleys, such as those of the Gave de Pau, the Adour, Garonne, and Ariège, have attained some reputation as tourist and vacation areas. The small towns, such as Oloron, Tarbes, and Pau, each of which is the focus of the economic life of its valley, have developed small textile and metallurgical industries, and Lourdes, in the valley of the Gave de Pau, has become a place of pilgrimage for Catholics from all parts of western Europe. Recently oil and natural gas have been found in the Pyrenean foothills, and refining and related chemical industries have been established.

THE CENTRAL MASSIF

The Central Massif is the largest and most complex of the regions of ancient rock in France and is made up of a number of distinct units, such

as Morvan, the Causses, Auvergne, and the Cévennes. On the west it represents a continuation of Brittany, and the hills here show the same northwest-to-southeast trend as the hills of La Vendée. On the east, the ranges of the massif lie parallel to the direction of the Vosges and Black Forest. The whole region is one of the most varied in relief, aspect, and productivity of any in France. It has been intruded by igneous rocks which form extensive areas of rounded upland and has been the scene of recent volcanic action which has built up the range of *puy*s, or extinct craters. On the west and south the region is covered by level beds of dry limestone, which composes the Causses. Fault-bounded basins within the massif were once occupied by shallow lakes and are now covered with sands and clays which contrast strongly to the surrounding uplands. The massif can be divided into nine distinct physical units.

The Morvan is the most northerly extension of the massif. In size and configuration it closely resembles the Vosges. It is a forested region, with a heavy rainfall. To the south of the upland of Morvan is a faulted depression, known as the Autunois, where the coal measures have been preserved, and coal is mined at Le Creusot and Blanzay. This depression forms a routeway, followed by road, rail and canal, from the Loire Valley to the Saône Valley.

The Charollais, Beaujolais, and Vivarais stretch south of the Autunois. The coal beds are preserved in a faulted basin at Saint-Etienne (289,000) and Rive-de-Gier. In the north these hills are not high, and they do not display the rugged and sharp-edged features which characterize their more southerly continuation. Along their eastern face the grapevine is grown, and the hills have given their names to famous vintages. South of the Lyonnais, the hills become higher and more rugged and form, in the mountains of Vivarais and of Coirons, a formidable barrier between the valleys of the Rhône and the headwaters of the Loire. The steep edge of the Cévennes overlooks the lowlands of the Rhône delta. It is a rugged, wooded region. The southeastern edge is straight and abrupt and follows, in part at least, a line of



Landscapes of France: The upper Loire Valley, near Le Puy. The volcanic rocks produce a rugged terrain but a fertile soil. The valley bottoms are intensively cultivated; upper slopes provide only rough grazing. (N. J. G. Pounds.)

faulting. This faulting has preserved at the foot of the Cévennes scarp a small area of coal measures.

The Grandes Causses are formed of limestones which lie in horizontal beds on the surface of the crystalline rocks of the massif. The deep valleys of the Lot, Aveyron, the Tarn and their tributaries divide the Causses into a number of barren and waterless plateaus. The Causses display the erosional features commonly associated with limestone. Apart from the through rivers, there is little surface drainage, and most streams flow underground. The surface has little soil and little vegetation and is strewn with craterlike dolines and with smaller landforms produced by the solution of the limestone. Agricultural potentialities are restricted, and the population is sparse and declining.

Rouergue is the extreme southwest of the mas-

sif. It is cut up by the deep valleys of the Lot, Aveyron, Tarn, and Agout into a number of rounded and wooded or *maquis*-covered hills. Of these the Montagne Noire, the most southwesterly extension of the massif, is the most distinctive and most clearly defined. The valleys are wide and have a limited agricultural value. There are a number of small towns, in each of which industries traditional in these regions are carried on, such as the making of lace, woolen cloth, leather, and leather goods.

Strictly, Limousin is the name of the region about the town of Limoges (120,000). It is, however, used here to cover the whole region of rolling upland country which stretches from the plateau of Millevaches, north of the Dordogne Valley, through the region of La Marche to the

plateau of Combrailles. Although coal is mined in a few small, down-faulted basins, the region is predominantly one of pastoral agriculture and sparse population. Towns are few, and only Limoges on the west and Montluçon (69,000) on the north are of more than local importance.

Stretching from south to north across the center of the massif is an area of recent volcanic activity, known as the Auvergne. In the south is the basaltic massif of Aubrac, a much-dissected region of basalt flows. This is continued northward in the Cantal, the huge base of a former volcanic cone in which recent volcanic activity has built up smaller cones, or *puy*s. North of the Cantal is further evidence of recent vulcanicity in the Mont Dore and the chain of *puy*s which lies to the west of the town of Clermont-Ferrand (160,000). This vulcanism is very recent and was not quite extinct in the early Christian period. The landscape here is bizarre in the extreme. The steep, conical *puy*s rise abruptly from the plateau in a closely spaced group. Their vegetation is sparse, and in places the rough scoria of recent eruptions still lies over the surface. The whole has the aspect of a lunar rather than a terrestrial landscape.

Between the upper valleys of the Allier and the Loire lies the steep, fault-bounded massif of Forez, continued southward in the volcanic mountains of Velay, on the margin of which lies the town of Le Puy. Here the volcanic stumps have provided pedestals for the exotic collection of churches and monuments which decorates this little town. The whole region is bleak and wet, and as in the mountains farther west, pastoral activities predominate.

The valleys of the Allier and the Loire were the sites in earlier times of shallow seas, in which accumulated beds of sand and clay. The Allier, which rises in the Cévennes, flows northward through a number of small, mountain-rimmed basins and, a few miles south of Clermont-Ferrand, enters the broad flat plain of the Limagne. It is a productive and well-peopled region, dotted with villages and small towns. Amongst these, Vichy has a reputation as a spa and was the seat of the government in France during the German occupation in the Second World War. On the

western margin of the basin is Clermont-Ferrand, a route center and a seat of silk, textile, rubber, engineering, and chemical industries. The valley of the Loire was similarly occupied by a Tertiary lake, but the deposits which it left are smaller and, in general, less productive than those of the Limagne.

Despite the several fertile and sheltered basins that are contained within the massif, the region as a whole is one of thin, poor soil, of heavy rainfall, and cool, if not cold, winters. It has tended to be a depressed area, where the people eke out a meager existence, growing hardy cereals and potatoes and rearing cattle and sheep. The more enterprising migrate to the lower and richer regions, and most parts of the massif have shown in recent times a diminishing population.

BURGUNDY AND THE RHÔNE VALLEY

The limestone plateau of Langres and the Côte d'Or sink eastward to the basin of Burgundy and beyond rise again to the long unbroken line of the Jura. Between the Vosges and the northern spurs of the Jura is the gap of Belfort, a narrow strip of land some 15 miles wide, which links the upper Rhine Valley with that of the Saône.

The limestone of the Côte d'Or ends against the ancient rocks of the Central Massif, and from Mâcon southward to the boundary of Provence, the Saône and then the Rhône flow close to the steep edge of the massif. The plain is wider on the east, but at intervals hilly masses or narrow rocky ridges stretch westward from the Alps, dividing the Rhône Valley into a series of compartments.

The plain of Burgundy itself is a rich, well-peopled agricultural region, through whose meadows and vineyards meander the Saône and its tributaries, the Ognon and Doubs. Viticulture is widespread, and along the slopes of the Côte d'Or, at Beaune, Nuits, and Chagny, are the vineyards from which is produced the wine of Burgundy. Dijon (160,000) is the center of the Burgundian wine industry and also the ancient capital of Burgundy. On the opposite side of the plain of Bresse is the engineering center of Besançon



Landscapes of France: Vineyards lie along the lower slopes of the Côte d'Or, as the limestone escarpment of Burgundy is called. This photograph shows the vineyard of Clos Vougeot, one of the most famous sources of Burgundy wine. (N. J. G. Pounds.)

(97,000), almost enclosed by a meander of the Doubs. In the Belfort Gap are the towns of Montbéliard and Belfort (66,000). Belfort is a small town but of great military importance, guarding the route westward between the Vosges and the Jura.

South of Chalons the plain narrows and the river is forced across to the western side of its plain by the discharge of the rivers from the Jura. The plain to the east, known as the "Pays de Dombes," is covered with the boulder clay left by the Alpine glaciers. It is a region of cold, damp soil, and agriculture is little practiced.

The Rhône joins the Saône at Lyon (*F*: Lyons, 886,000). The city grew up under the Romans on the right bank of the Saône and has since spread to the area between the two rivers, which is now the center of the city, and to the east bank of the Rhône, which is the present industrial suburb.

The silk industry is the most important in Lyon. It was established here some four centuries ago. The rearing of silkworms was formerly important but is now largely discontinued, and raw silk is imported from Italy and from Asiatic countries. At first the industry was carried on by hand labor in and about the city itself, but in recent years it has spread into the surrounding country. Factories were established in the small towns of the Lyonnais, where labor was abundant and cheap, so that the town of Lyon is now the business center of the silk industry rather than the actual seat of its manufacture. With the decline in the demand for natural silk the Lyon area has developed the manufacture of the artificial substitutes that have been increasingly adopted. Lyon is now also a center of the chemical, metallurgical, and engineering industries.

To the northwest of Lyon are a number of

towns, most of them small, in which is carried on a long-established woolen and cotton industry. In this rather sterile region there has been a degree of poverty and of overpopulation sufficient to lead the peasants to take up domestic industries and to offer their services at a low wage. The result has been the persistence of this manufacture in such towns as Roanne and Tarare.

A few miles to the southwest of Lyon is a depression between the Lyonnais and the Vivarais Mountains in which lies the Saint-Etienne coalfield. In some respects this area is an industrial outlier of the Lyon area; it has a silk industry and has long been a center for the manufacture of ribbon. On the other hand its metallurgical industry is based on its local resources of coal. Iron and steel goods are made in the works of Saint-Etienne (289,000) and of the smaller towns of the coalfield.

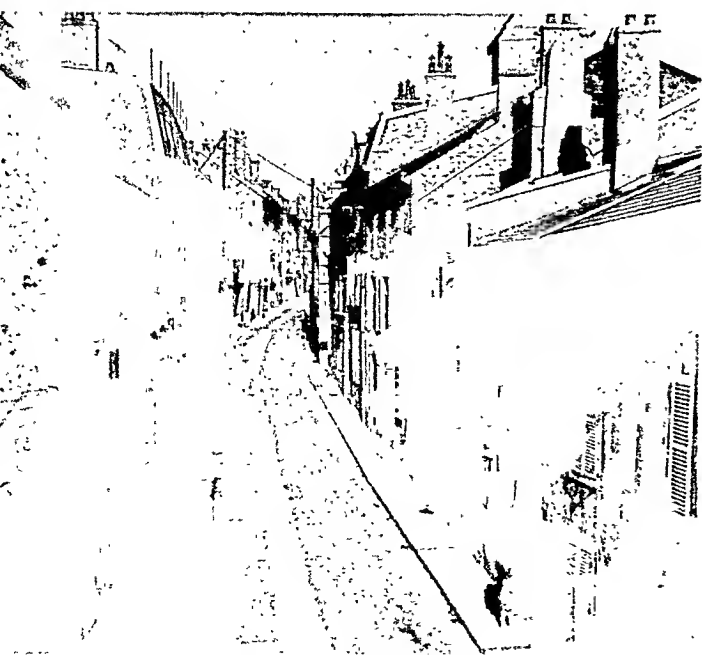
South of Lyon, the Rhône flows in a valley bounded on the west by the Central Massif and on the east by the foothills of the French Alps. Spurs from both east and west stretch out into the Rhône Valley, dividing it into a number of compartments. The valley is thus made up of alternating basins and gorges. Below Lyon, the river occupies a narrow valley across a belt of undulating hill country, where, shut in by steep hills, is the town of Vienne. Below Vienne the hills draw back and the river is bordered by a

plain where, near Valence, the river Isère from the Alps joins it. Hills again draw in and separate the Valence Basin from that of Montélimar. A few miles below Montélimar, at the little town of Mondragon, a low ridge of hills runs out to the river and terminates in a castle-crowned crag. To the south is the plain of Provence.

The Rhône was used for navigation in Roman and medieval times, but its shallow stream and swift current have not suited the needs of modern barge traffic. In recent years, however, the river has been canalized up to Lyon by the construction of a series of dams, which serve to raise the water level, to even out the flow, and also to generate electricity. The Rhône is becoming again a navigable waterway, and there is talk of improving the canals which link it with southwest Germany.

PROVENCE

The aspect of the land changes as one goes from Lyon southward. In the Saône Valley the fields and meadows are like those of northern Europe. Below Lyon the summer rainfall diminishes; the meadows become rarer and then disappear; southern fruits make their appearance. The vine is no longer grown only on land sloping toward the sun; vineyards now cover the flat valley floor and even the north-facing slopes. Tall cypress trees are dotted about the fields or are



The small provincial town best typifies France. The untidy picturesqueness of the streets is illustrated by this glimpse of Langres. (N. J. G. Pounds.)

grown in straight rows as protection from the fierce mistral, which blows from the north. Small windbreaks of cane or wood are built to shelter the tender crops. The sunshine becomes more intense, the vegetation turns from green to gray and brown, and at Mondragon the first olive trees appear. This is the beginning of the Midi. Low ridges of dry, *garrigue*-covered hills continue to lie from east to west across the plain as if nature herself were erecting a barrier against the winds from the north. These ridges are infertile and uncultivated, but between them the alluvium of the Rhône makes for a profitable agriculture. The grapevine and the olive, interspersed with small groves of apricots and peaches and patches of corn, sunflower, or tobacco, cover the land.

Orange, a Roman town with many Roman remains, lies a short distance from the Rhône. Avignon (90,000), with its ancient walls and its towering Castle of the Popes, rises from a bluff above the river, and in Arles, where the Rhône divides into the distributaries of its delta, "as you walk along the tortuous land between high houses, passing on either hand as you go the ornaments of every age, you turn some dirty little corner or other and come suddenly upon the titanic arches of Rome."¹ The impress of Rome is strong in Provence; even its name is derived from the Latin *Provincia*.

The Camargue is the alluvial region of the delta. Here the river is building forward quickly. Despite drainage, the region remains damp and in general unsuited for agriculture, though cattle are reared and crops of rice have recently been taken. To the east is the Crau, a stony wilderness, consisting of the detritus swept down from the Alps. Part is cultivated, though water for irrigation is scarce, and much of the land is used for the winter grazing of sheep, which in summer are still taken by train to Alpine pastures.

In the Chaîne des Alpilles, which crosses Provence to the north of Arles, is the town of Les Baux. Here bauxite, the ore from which aluminium is obtained, was formerly extracted on a considerable scale.

West of the Rhône, the plain averages some 20 miles in width between Nîmes and the Pyrenees. The shore line is straight, smoothed by the currents that run westward along the coast. The mouths of rivers have been closed, lagoons formed, and ports cut off from the sea. On the inner side of the plain, the Cévennes rise steeply to their bare or scrub-covered summits. Nîmes (100,000), Montpellier (124,000), Béziers (75,000), and Narbonne are the more important towns of this rich agricultural region. Some of these were once ports, but their rivers have been choked, and their estuaries closed. The plain reaches westward to Carcassonne, which, despite its drastic restoration in the nineteenth century, remains the perfect example of a medieval fortified town, before it is pinched out between the Pyrenees and the Central Massif. This is the most important wine-producing region of France, its volume of output greatly exceeding that of the more famous areas of vintage wines, but most of it is *vin ordinaire*, the cheap wine drunk by the Frenchman with his meals and not exported to other countries.

East of the Crau the mountains come down to the sea. Small areas of flat or undulating land alternate along this coast with precipitous cliffs in whose sides the French engineers have hewn the Corniche roads.² This short stretch of coast, which is no more than 150 miles from Marseille to the Italian border, is perhaps the most famous of the whole European periphery. Hills of limestone and of red granite, mantled with dark-green forests of chestnut, evergreen oak, and the even darker cypress and pine, drop steeply to the blue water of the Mediterranean. The small patches of cultivation bear mainly the vine, the olive, and other fruits; vegetables and flowers are grown. The roads are lined with oleanders, and gardens are decked with the vivid colors of bougainvillea and fuchsia, scented with thyme, and lighted by the intense brilliance of the sun.

Marseille (808,000) lies to the east of the

¹ H. Belloc, *Hills and the Sea*, London, p. 72, 1918.

² Between Nice and Menton there are three Corniches, the uppermost of which is a spectacular routeway along the summit of the cliffs. West of Nice, there is a single road which bears the name Corniche.

delta, protected by the westward run of the current from silting. It is shut in by high, bare limestone hills, and the railways and even the canal enter the town by tunnels. It has a deep and sheltered bay which in some degree makes up for the inconvenience of its landward communications. Marseille is one of the chief commercial ports of France, importing "colonial" goods which have formed the basis for its manufacture of margarine, soap, and sugar.

East of Marseille is the naval base of Toulon (221,000), situated on a deep and sheltered harbor but joined to the rest of France only by a circuitous railway which follows the coast. East of Toulon, the Chaîne des Maures, a rugged massif, reaches the coast and produces spectacular scenery. East of the Argens Valleys and the little silted port of Fréjus, the Chaîne de l'Esterel rises steeply from the sea and separates the resort town of Saint-Raphaël from that of Cannes. Nice (*It: Nizza*, 310,000) is the largest of the resort towns of this coast. To the east the Alpes Maritimes reach the sea in cliffs that rise more than 1,000 feet from the water between Nice and Menton. The principality of Monaco (population 20,000), a political enclave on the French coast and in customs union with France, lies between the cliffs and the sea and embraces the little rock-girt town of Monaco itself and the adjoining Monte Carlo. A mile or two beyond Menton (*It: Mentone*), a torrent bed forms the Italian boundary.

This is the Riviera, better known to the foreigner than any other part of France except Paris. Its warm and sheltered winters, its bright sunshine, the beauty of its coastal scenery, and its attractive towns, coupled with judicious publicity, have made it a playground for much of Europe.

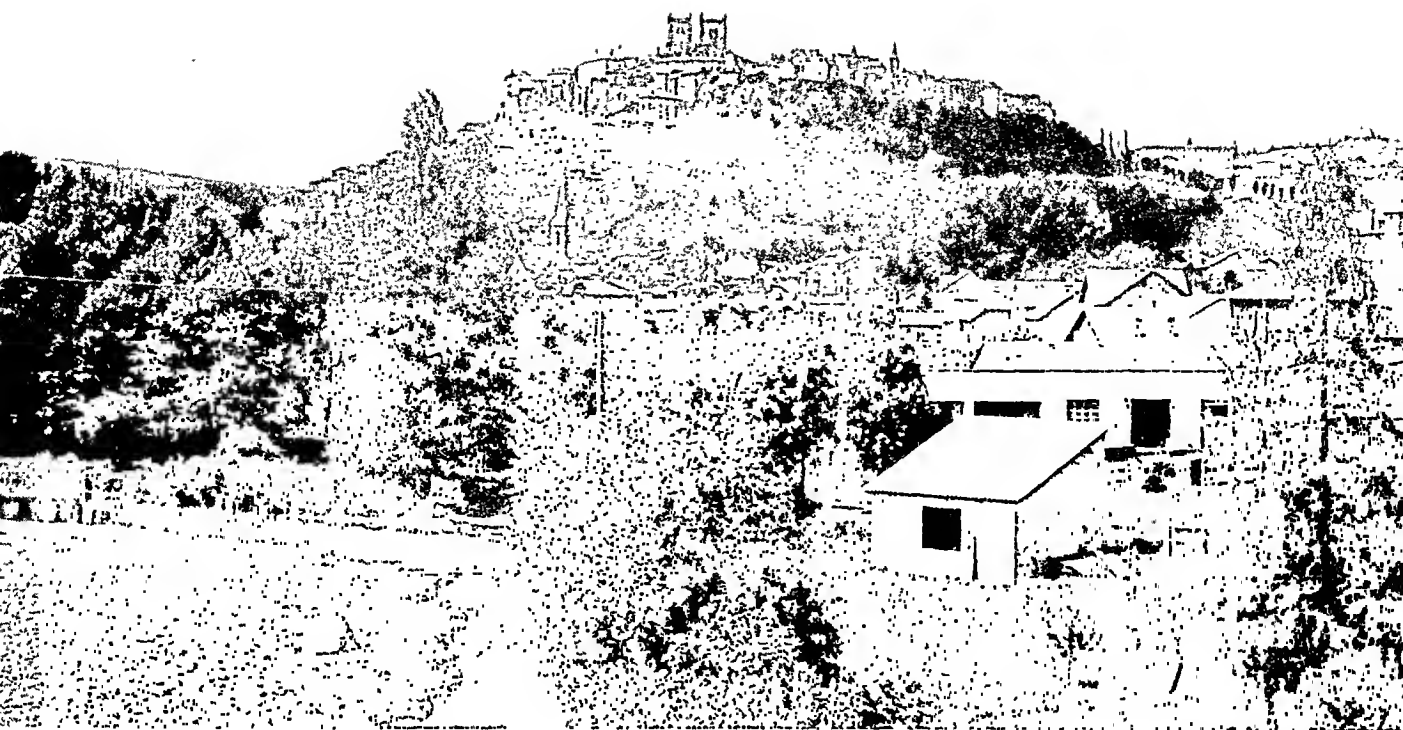
THE FRENCH ALPS

The high ranges of the Alps reach southward from Lake Geneva to the Mediterranean Sea near Nice. The core of the range is formed by the crystalline massifs of Mont Blanc and the Aiguilles Rouges, of Belledonne and Pelvoux. Each of these is a snow-covered and ice-fretted massif, a beautiful but pathless wilderness separating France from

Italy. The valleys of the Isère, the Arc, and the Drac, which separate these masses from one another, lead up to the few passes across the range. The Little Saint Bernard Pass runs up from the Isère Valley, and the Mont Cenis Pass runs up from the Arc. A railroad tunnel pierces the mountains a few miles from the Mont Cenis Pass. A road tunnel has now been pierced under Mont Blanc, thus facilitating year-round travel between France and Italy.

A depression borders the western edge of massifs, from Martigny, at the bend of the Rhône, through Chamonix and Albertville until it opens into the broad, flat-floored trench of Grésivaudan. In the midst of this elongated plain is Grenoble (233,000), a city of considerable size and a center of electrical and other industries. The city is a focus of routes that radiate into the Alpine valleys, and it commands the Isère Valley as it opens westward to the Rhône. Hydroelectric installations are numerous in the Isère, Arc, and Drac Valleys, and around them have been developed electrochemical and electrometallurgical industries. The narrow, barren, and treeless valleys of the Belledonne now contain busy factories and workers' dwellings, in an environment that provides no amenities and no resource except power. The floor of the Grésivaudan is well cultivated. The grapevine is grown, grain matures, and hay is made on moister land, but these conditions quickly deteriorate up the valleys. Fruit trees disappear; only hardy cereal crops and roots are grown; then these, too, give place to meadow and forest, until on the higher slopes no agricultural use of the land is possible. The high pastures are used only in summer, when animals are brought up to them, some from as far away as the Rhône Valley, where the grassland is dried up by the summer heat.

West and south of the Alpine trench is a broad belt of mountainous country, less high and rugged than the crystalline Alps and without permanent snowfields. These mountains are built very largely of limestone. Rivers escaping from the Alpine trench have divided them by means of narrow gaps into a series of detached mountain masses. Most northerly of these is the Chablais, which rises in the north from the blue waters of Lake



The little hilltop town is typical of southern France. This photograph shows Saint-Flour, set amid the hills of the Auvergne. (N. J. G. Pounds.)

Geneva and reaches southward to the Arve Valley. The Genevois lies between the Arve and the valley of the Fier in which are Annecy and its lake. The Bauges continues the chain as far as Chambéry, beyond which rises the abrupt massif of the Chartreuse, in whose forested recesses the founders of the Carthusian order in the late eleventh century established the monastery which still survives at La Grande Chartreuse. The Isère breaks through the gap between the Chartreuse and the Vercors. The Vercors continues the direction of the more northerly folded blocks, but where it passes into the Diois, the folds begin to turn toward the southeast and in the Ventoux are running from west to east. The Durance crosses these ranges in the cluse at Sisteron, and to the east of the river the same easterly trend is maintained. These are barren, stony hills, where there is a sparse covering of southern forest and large areas of *maquis*. Rivers such as the Var and the Verdon cross them by gorges. Population is sparse and movement difficult in this broad southern part of the limestone Alps.

The French Alps are a region of contrasts. Over the greater part of the area it is one of poor agriculture and declining population. Its people melt away into the cities of the Rhône Valley and of Provence. The uppermost of the terraces on the valley sides are found abandoned, and in few valleys is there evidence of new building. The exception is found around Grenoble, in Tarentaise or the upper valley of the Isère, and in Maurienne or the upper Arc Valley. In each of these the generation of hydroelectric power has promoted industrialization. The electrochemical and electro-metallurgical industries are carried on in little "boom" towns along the valleys, and an industrial population has settled high up among these austere mountains.

THE JURA MOUNTAINS

The parallel ridges of the Jura run from the Rhône northeastward to the Rhine near Basel. The hills consist of beds of limestone and clay folded into a series of tight corrugations. These have been

extensively eroded and reduced to a complex series of closely packed limestone ridges. The Jura rises gently from the plain of Burgundy but overlooks the plateau of Switzerland in a high steep scarp.

The drainage of the range is by rivers which flow between the ridges, breaking through by steep and narrow cluses, or gorges, from one valley to the next. The Doubs follows a circuitous course between the ridges of the northern Jura; the Ain and its tributaries drain the south. The only river that actually crosses the range is the Rhône, which, after leaving Lake Geneva, alternately breaching the limestone ridges and flowing between them, makes its way to the Saône.

The whole region is forested and sparsely peopled. Animals are reared, but only hardy crops are grown within the mountains. Hydroelectricity has been developed from the Rhône Valley, and further projects are being implemented in this region, where the narrow rocky valleys lend themselves to the construction of dams. Many of the valleys of the Jura are still difficult of access and likely to be cut off by snow in winter. Domestic crafts, especially woodworking and the manufacture of watches in small factories and workshops, are carried on in the recesses of the Jura.

EASTERN FRANCE

Along the eastern borders of France are areas of greater altitude and sharper relief. The Ardennes Plateau, which lies chiefly in Belgium and western Germany, just extends within the French boundary. To the south is a broad tract of lower land, in which lie the German cities of Trier and Kaiserslautern. This has been one of the most used routeways between the Paris Basin and the Rhineland. In the seventeenth century the French built the fortress of Saarlouis (*G*: Saarlautern) at its western end, and on many occasions their armies have deployed over the Rhine Plain from its eastern end.

The Vosges Mountains extend southward from this area of lower land to the gap of Belfort, a distance of 130 miles. The northern half of the range, however, is low, rarely exceeding 1,500 feet in altitude. In the south the Vosges attain

twice this height. The range here consists of crystalline rocks, which drop on the west to the sands and clays of Lorraine. The eastern face of the High Vosges is abrupt and follows a line of faulting. Stretched out before it is the flat floor of the Rhine Valley, and some 20 to 25 miles away rises the equally steep scarp of the Black Forest.

The Low or northern Vosges are a rugged, dissected, and forested area of sandstone, drained very largely eastward to the Rhine. There are few routes across this hilly region; the easiest and most important is that which follows the Saverne (*G*: Zabern) Gap and links Strasbourg westward with the Paris Basin. A few miles to the south of Saverne the sandstone terminates, the altitude increases, and the bare grassy summit of the Vosges stretches southward until it drops abruptly to the gap of Belfort. The flanks of the range are deeply grooved by the short torrents that rush to meet the Rhine. On the west the slope is more gentle, and on this side are a number of cotton- and other textile-manufacturing towns, which owed their rise in part to the availability here of water power.

From the foot of the Vosges scarp the slope eastward to the Rhine is, in general, so gentle as not to be perceptible. The Rhine itself is bounded by marshy alluvium and deposits of gravel and sand. This region, known in the south as the Hart, is forested and sparsely populated. To the west flows the river Ill, the river of Alsace. Along its banks are meadows, and between the Ill and the Vosges is a covering of loess. Here the land is intensively cultivated. On the sunny slopes are the vineyards where the Alsatian wines are produced. Settlements are mainly on the Ill or along this belt of warm, rich soil, close to the Vosges. Mulhouse (*G*: Mülhausen, 165,000), a cotton-manufacturing town, Colmar, and Sélestat lie on the river. Against the hills is a line of small, walled towns, each of them famed for its wines. Strasbourg (*G*: Strassburg, 302,000), on the Ill a short distance above its junction with the Rhine, was a large and important frontier town at the time of the Romans. It lay opposite the Saverne route and at a point where the Rhine marshes narrowed and could be crossed with ease. It is now a focus

of the commercial activity of Alsace and is not only a Rhine River port but also the terminus of canals which cross the Vosges into Lorraine and link the Ill with the Rhône through the Belfort Gap. Strasbourg, partly because of its French and German associations, has now become the seat of a parliament representative of the nations of western Europe. North of Strasbourg, the plain becomes less fertile, more thickly strewn with gravel, and more heavily forested. Potash deposits occur near Mulhouse, and small quantities of petroleum are obtained in northern Alsace.

The province of Alsace is, with the exception of one or two of the upper valleys of the Vosges, German in speech. It was largely occupied by

the French in 1648 and remained under French rule continuously until 1871. It was restored to France in 1919. Throughout this period the people of Alsace have generally demonstrated their desire to remain citizens of France, in spite of the barrage of propaganda that has at times been raised from beyond the Rhine. German is spoken in northern Lorraine, and this area also was annexed to Germany in 1871 and remained German until 1919. At the same time the Alsatians have shown little disposition to absorb French characteristics, and have strenuously resisted the ill-judged attempts of the Paris government to impose the French language on them. They remain Catholic Rhinelanders.

By contrast with Saint-Flour, the cities of northern France spread out over gently undulating ground, and often have spacious market squares. This is Arras. The buildings are of Renaissance date, though rebuilt after the destruction wrought during the First World War. (N. J. G. Pounds.)



Corsica

The island of Corsica (*F*: Corse) was acquired by France in 1768. It is built of crystalline rocks. Its relief is rugged, and its soils shallow and poor. Much of its small area of 3,367 square miles lies at a height of over 1,500 feet. This considerable altitude moderates its Mediterranean climate and induces a considerable rainfall. Forests of chestnut cover much of the higher land and yield a food for man and beast. The valleys of the interior are deep and narrow, and movement is difficult. Settlements are small and very nearly self-sufficient. In their lower courses the valleys broaden and their agriculture becomes more extensive and more important. There is, however, little flatland. A

narrow belt of plain, at most some 7 or 8 miles wide, fringes the east coast, but on the west the low-lying land is found only at the heads of the deeper bays. Ajaccio, the capital of the island, lies in such a position, and there are some small towns on the eastern coast. Most of the population (276,000), however, dwells away from the sea, in the mean and squalid villages of the interior, where the poverty and backwardness of the people are extreme. The islanders in general speak Italian, and under the Fascist regime, the Italian government claimed the cession of Corsica. The natives, however, seemed undisturbed by such appeals to their earlier allegiance, and some derive a certain satisfaction from the fact that Napoleon was born a Corsican.

The Economy of France

15

Everything in the human geography of France bears the stamp of antiquity. The fields that are now being cultivated have in many instances scarcely changed their size or plan since the Middle Ages. The cultivated strips of many owners lie intermixed in the open fields as they did before the French Revolution. Many of the towns derive from Roman origins, and the Roman towns in their turn were often built to replace the prehistoric hilltop forts. The "bastides," fortified cities built by Louis IX in the thirteenth century, and the planned town of Vitry-le-François, laid out by Francis I in the sixteenth, are, for France, towns of recent origin. Really modern urban growth, like that of Great Britain or Germany, is confined to a very few industrial areas, such as the northeastern coalfield and the environs of Paris. Along with these outward manifestations of a long history there go also a reverence for tradition, a respect for craftsmanship, and until recent years, a degree of distrust of modern industrial development that may have served to protect a way of life which is essentially French but hardly equipped a nation for the fierce competition of modern industrialized societies. French agricultural holdings remain small and, by English or American standards, ill equipped and inefficient, but recent attempts to improve the structure and

add to the equipment of French agriculture have made it a great deal more competitive in west European markets. French industrial undertakings are, with some conspicuous exceptions, also small, but here too the efficiency of industry has been greatly improved in recent years. Many industries tend still to be family concerns, which have survived into an age of joint-stock companies and cartels.

POPULATION

The population of France, including the island of Corsica but excluding those overseas dependencies which are still reckoned to be part of metropolitan France, was estimated in 1962 to be 46,520,000. The average density is about 215 per square mile. This density is not a high one for western Europe, and only the Scandinavian countries and the Iberian peninsula actually have a lower one. A relatively large proportion of the total population, about 20 per cent of the active males, is engaged in agriculture and forestry. The description of the physical regions of France given in the previous chapter will have shown only a few large areas where agriculture is difficult and settlement sparse. A continuity of settlement pattern is one of the outstanding features of the geography of France. The population density is thin in the Alps and Pyrenees, the Cévennes, the Causses, and the high volcanic region of the Central Massif, the sandy wastes of the *landes* and the Sologne, and parts of the high, dry chalk and limestone plateaus to the east of the Paris Basin. Few areas except the urban have a much greater density than 200 persons to the square mile. Only on the rich soils of French Flanders, in the plain of Alsace, in parts of the Rhône Valley, and in the vine-growing regions of Bordeaux and the Midi is there an agricultural population of greater density.

The population of France at the beginning of the nineteenth century was over 27 million. Since that date, its growth has been relatively slow—much slower, in fact, than that of Italy, Germany, and the British Isles. About the year 1800, France was the most populous country in Europe, with the possible exception of Russia; her population

today is exceeded by that of all her great neighbors. The French birth rate, which had once been unusually high, began to decline early in the nineteenth century. An important factor in this diminution of the birth rate lay in the law whereby the peasant holding had to be divided among the sons, each taking his share of his father's lands. The peasant desired above all things to maintain his land intact and to add to it rather than divide it. The alternative to a divided holding was a smaller family. The population declined in the richest agricultural lands, but it declined even more strikingly in those areas where the soil was poor and the climate harsh. From these labor migrated, sometimes seasonally, to gather the harvest in more productive regions, but more often permanently. The Alps, particularly in the département of Basses Alpes; the Pyrenees; much of the Central Massif, especially the Causses; the plateau of Langres; the damp hills of Normandy; much of the eastern part of the Paris Basin and the borders of the Ardennes; and the island of Corsica—all show continuous diminution of population over the past two generations. Much of the efflux from these regions went to maintain a more nearly static condition of population over the rest of France or to populate the growing industrial areas.

The number and size of French towns have increased quite markedly during the past century. A hundred years ago, less than a quarter of the total population was urban. Only 4 cities had a population exceeding 100,000 as against 30 in 1962.¹ Former French provincial towns, which had rarely counted more than 8,000 or 10,000 inhabitants, now have from 30,000 to 50,000.

France's deficiency in labor was made good by the immigration of Italians, Spaniards, Belgians, and Poles. Italians and Spaniards assisted in gathering the fruit harvest of the south. Italians

¹ Paris, Marseille, Lyon, Toulouse, Nice, Bordeaux, Nantes, Strasbourg, St. Étienne, Lille, Le Havre, Toulon, Nancy, Grenoble, Rennes, Brest, Dijon, Reims, Le Mans, Clermont-Ferrand, Rouen, Montpellier, Limoges, Angers, Roubaix, Mulhouse, Villeurbanne, Boulogne-Billancourt, Amiens, Metz.

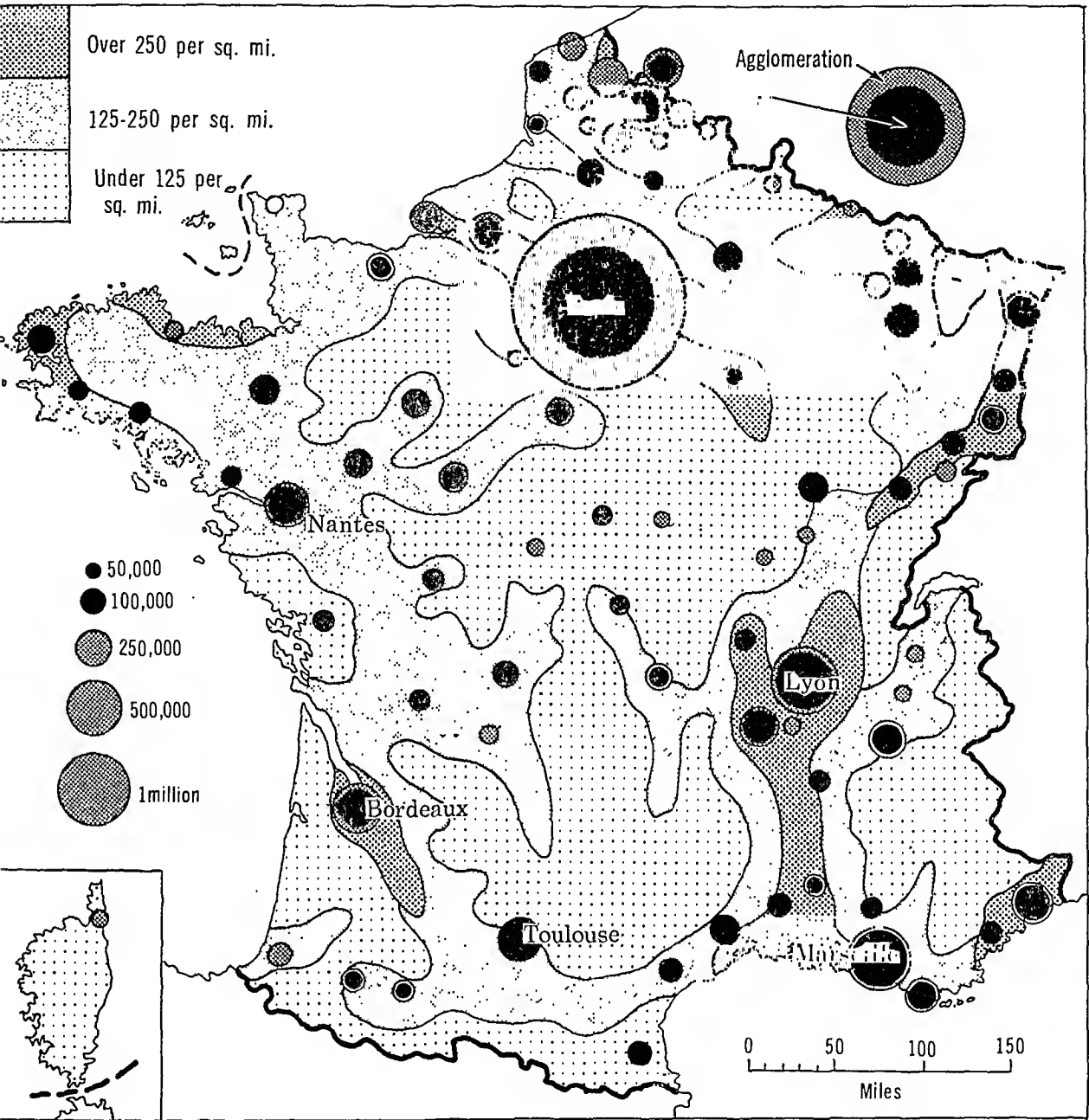
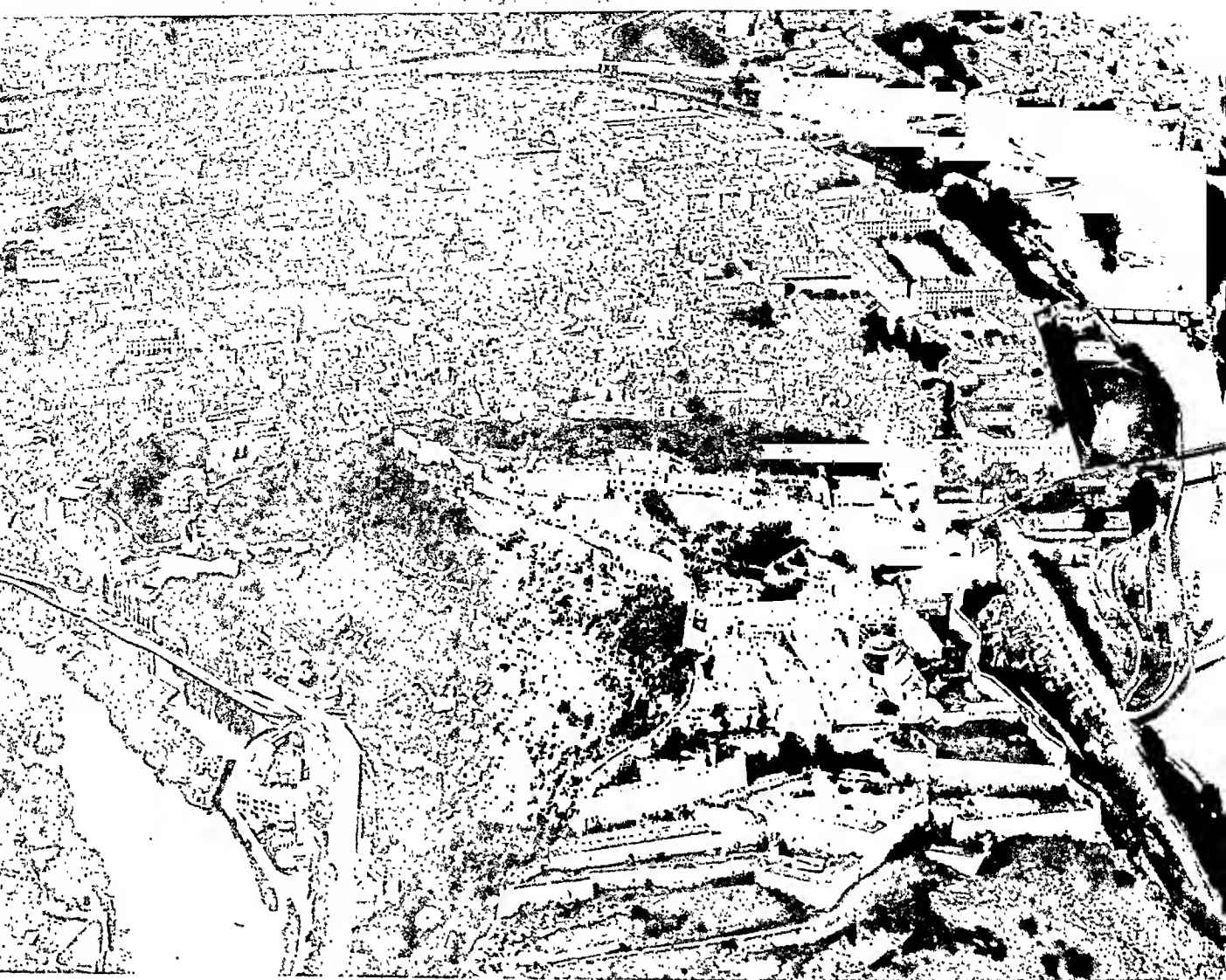


FIGURE 15-1. France: distribution of population and principal cities.

bored on the road and railway works of the
lps, and Algerians in the iron mines of Lorraine;
zech and Polish miners worked in the coal mines
f the north, and in time of economic depression
and unemployment, the temporary laborers could
ways be sent home to live on the charity of their
ative countries. During the first half of the pres-
nt century the population of France grew so

slowly that it posed a military and economic
problem. After the Second World War the French
government began to give family bonuses, and
this, coupled with the prosperity and full employ-
ment which followed the introduction of the plans
for industrial development and modernization, led
to a sharp increase in the birth rate. Between 1946
and 1962, the population of France, with an in-



The city of Besançon grew up in the shadow of a medieval fortress, seen in the foreground and enclosed by a bend of the river Doubs, traceable here by the line of trees. In modern times the city has spread beyond the meander core of the river. (Aerofilms.)

crease of 15 per cent, became one of the fastest growing in Europe.

AGRICULTURE IN FRANCE

Agriculture has been practiced in parts of France since Neolithic times, which, in this part of Europe, must have begun earlier than 2000 B.C. The oldest settlements were on the open or lightly wooded loess soils, the *terre de culture facile*, and on the dry limestone. From these regions it extended to the thickly wooded clays and the poorer sands. It is probable that the agricultural pattern had, in large measure, achieved its present shape by the end of the Middle Ages. Since then,

the woodlands have receded somewhat and the marshes of Flanders and of the Biscay coast have been largely reclaimed. From very early times, agriculture was conducted on a two- or three-field system. In the south, half the land was under cultivation, while the remainder was allowed to lie fallow and recover something of its natural productivity. In the north, where a three-field system was more general, only a third of the land lay fallow in each year. In Flanders during the eighteenth century a more intensive cultivation, which admitted of no fallowing, succeeded the three-field rotation and spread gradually into France. In very few places, however, had the practice of fallowing been abandoned at the time

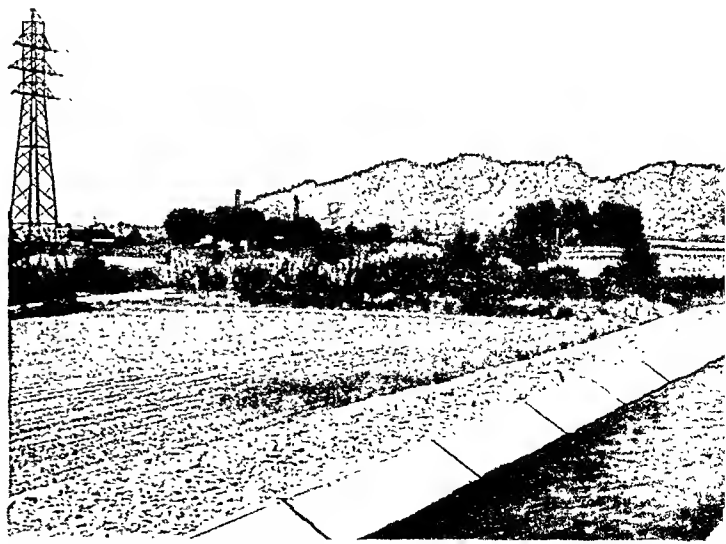
of the French Revolution. In the south, maize, or corn, introduced during the seventeenth century, spread and came gradually to be cultivated on land that had previously been allowed to lie dormant. Even today, however, there are farm holdings in the less-accessible regions of the Central Massif where the ancient practice of two- or three-course fallowing has not been wholly abandoned.

Despite the very great improvements of recent years the material equipment of French agriculture is in many ways quite inadequate. Mineral fertilizers are used on an adequate scale only in restricted areas. The grain-producing land of Artois in the extreme north, the lowlands of the Breton peninsula and the Biscay coast, where flowers and early vegetables are grown for the Paris market, and the irrigated plains of the lower valley of the Rhône may perhaps be considered adequately fertilized. For the rest, a line drawn from the western end of the Pyrenees northeastward to the Ardennes separates a northwestern area where the use of fertilizer is considerable if not adequate, from a southeastern area where its use is, except along the lower Rhône, quite inadequate.

Nor is enough use made of farm machinery, of electricity, and of piped water supply, although these are on the increase. Until recently regions were many where the grain was cut laboriously with the sickle and threshed by means of the primitive flail, swung above the heads of the farmers to

beat the grain from the husk. Plowing with a wooden plow without even a moldboard and cultivating with a hoe had not been wholly abandoned. Yet in the Paris Basin, where factory occupations offer a counterattraction to farming, the farms were obliged to become more mechanized and efficient in order to remain in business. This slowness to mechanize was not due to an abundance of rural labor that would make farm machinery superfluous; it sprang from an innate conservatism, from a lack of capital, and from the smallness of both farms and fields. To the French peasant, agriculture is not a means of livelihood, but a way of life; to mechanize, even if he had the means, would go far toward destroying the mystique which surrounds the oldest and still the most respected occupation in France. That reverence for the land and for the peasant way of life, which is implicit in Émile Zola's novel *Terre*, is still present among France's peasantry. The past fifteen years, however, have seen a revolutionary change. Much progress has been made in consolidating the fragmented farms and in introducing more modern methods. The result is seen in the sharp increase in the volume of good production.

France is a country of peasant land ownership. The size of the holdings varies with the wealth and social standing of the peasant and also with the soil and the mode of agriculture practiced. A great many holdings are too small for economic exploitation. About 36 per cent of the cultivated



The fields of the lower Durance Valley are irrigated by water stored during summer behind dams such as that at Château Arnoux. See page 212. (N. J. G. Pounds.)

area is divided into holdings of a size less than 25 acres. Only a quarter of the total area devoted to agriculture has really large farms of 250 acres or more. These lie either in the broad grain-growing lands of the Paris Basin or in the infertile mountains of the southeast.

At the time of the Revolution the peasants took over the land from their seigneurs. The change was one of legal and social status; the practices of agriculture were scarcely altered. The peasants continued to cultivate the same strips of land as their ancestors had done, intermixed in the same open fields. This fragmentation of the holdings has continued until the present in many parts of France. Attempts to gather the strips into a number of compact and economic holdings have met with only a moderate degree of success, but if the change continues, even at its present slow rate, it is likely in the course of several generations to alter radically the appearance of the countryside.

Almost three-quarters of the farmers own the land they cultivate. The rest pay rent in some form or other. Most pay a fixed money rent to a landowner; the small and diminishing number of *Métayers*, or sharecroppers, receive from the landowner not only the holding itself with its buildings but also equipment, animals, and sometimes even the seed to sow, and by way of rent they return to the owner a fixed proportion of the total farm income.

Each of the three types of tenure shown in Table 15-1 has a clearly defined area of distribution. Sharecropping, which is of diminishing importance, was formerly widespread in the south and remains significant in Aquitaine, Provence,

and Berry. It seems to have been important in areas where either rural poverty was great or the prevailing agricultural activities, such as tree cultivation, required a considerable capital. Rent-paying farmers are most important and numerous in the north of France, from the gate of Poitou to the Belgian border, where, in general, the farm holdings tend to be the largest. The proprietor is most common in the southeastern half of France, where, in general, holdings are smallest and the material equipment and use of fertilizers least adequate. It is among the proprietors that the French agrarian problem shows itself most conspicuously and most seriously.

A line from the mouth of the Gironde to Alsace, which, as we have already seen, divides the area of larger, better-manured, and more highly mechanized farms from the less well managed, serves also to demarcate the most important region of grain farming. Over most of the area northwest of this line, except the damp uplands of Brittany and Normandy and the plateaus of eastern France, wheat or grain cultivation is widespread. Oats and barley have a broadly similar distribution. Rye, however, is less widespread within this northwestern area except on areas of poorer soil and unfavorable climate, such as the hills of Brittany and Normandy and the plains of Lorraine. On the other hand, rye is common in the Central Massif, where it is, by and large, the most important crop in the damp and chilly climate and on the acid soils of these uplands. Maize, or corn, has a very limited distribution. It is grown on a very small scale over most of France, but only in Aquitaine is there sufficient summer heat combined with an adequate rainfall during the crop's growing season for its cultivation to be really widespread.

Root crops are grown as a rotation crop in the grain-growing region of the north. Of these, sugar beet is an important crop in Artois and Picardy. Potatoes are more extensive. In the north they are grown in rotation. In Brittany, Lorraine, and the hilly region of the center they are of considerable importance for human food, because, like rye, they are tolerant of the harsh environment.

TABLE 15-1. Three Types of Landholders

Landholders	Per cent of total cultivators	Per cent of agricultural land
Proprietors	74	60
Farmers	21	30
Sharecroppers	5	10

Animal husbandry is particularly important in the northwestern coastal region from La Vendée to Artois, in the Central Massif, and in the Pyrenees. In the northwest, the mild and humid climate encourages the growth of pasture. Dairy cattle can be kept out-of-doors throughout the year, and hay and fodder crops grow well. This is the outstanding dairy region of France. Butter and cheese are made on a larger scale than in most other parts, and liquid milk is sent to the urban centers. The Central Massif is a region of greater altitude. Except locally, rich pastureland is not available, and in comparison with the north, little fodder is produced. Animals, particularly cattle and sheep, are grazed on the high moorlands. Many of these are transhumant, returning to the lower land for the winter months. Pastoral pursuits are the most important in the Alps and Pyrenees, but the total number of animals maintained is small. Milk and cheese production is of some importance, and sheep, which winter in the plains of the Midi and on the Crau and Camargue, are taken to the mountains in summer.

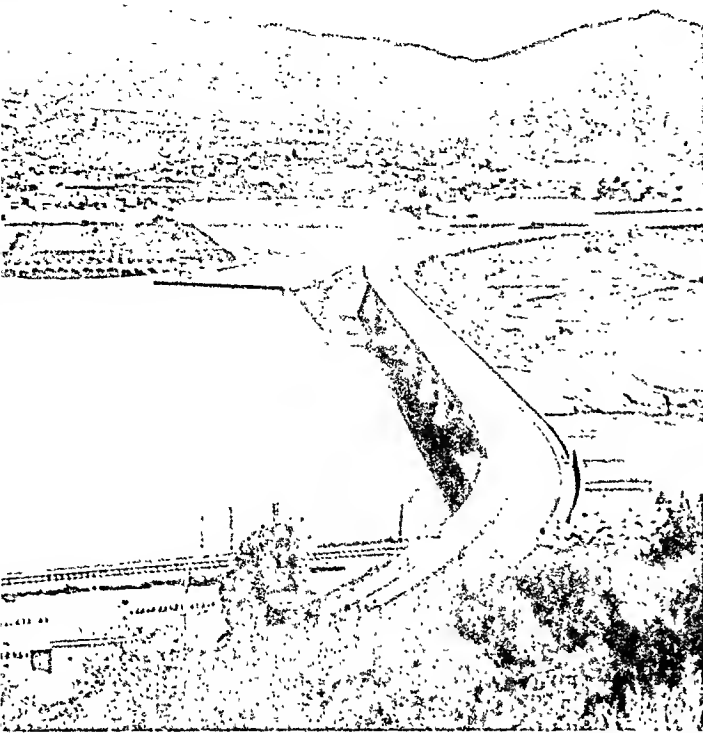
In many areas of suitable soil and climate, the grapevine is the most important crop in terms of both its value and the area cultivated. The greatest production by far is from the lowlands to the west of the Rhône delta, where wine of a poorer quality is produced and sold as *vin ordinaire*. The more famous French wines are produced in areas nearer the climatic limit of wine growing. Their excellence depends upon the skill of the viticulturalist, upon the care shown in pressing the grapes and fermenting the juice, and perhaps upon small and often unrecognized peculiarities of soil. Champagne is produced from the sunny slopes of the plateau near Reims; the sparkling wines from the gentle hills of the Loire Valley; Rhine wine from Alsace; burgundy, beaujolais, and other such heavy wines from the Saône and Rhône Valleys; and light wines, claret, Médoc, barsac, sauternes, and graves, from Bordeaux.

North of the limit of viticulture, beer and cider are more important. Normandy produces a rough cider from its apples, and beer is brewed and flavored with the hops that grow in the dry, sunny climate of Alsace.

The increase in the efficiency of French agriculture in recent years has been so great that France is now faced with surpluses in many branches of production. Farmers have been unable at times and in some parts of France to dispose of all their crops. Occasionally they have resorted to "dumping" crops in Great Britain: that is, selling at a price below the cost of production. The obvious market for French agricultural surpluses is in Germany, where in the past there have been high import duties, and in Great Britain where there were not only duties but preferences for Commonwealth products. The French have expected the European Economic Community to solve their problem. That it has done so only to a small degree has been due to the unwillingness of the West German government to expose its farming community to the competition of the generally more efficient French farmers. The problem is still not fully resolved; at the time of writing there is only a partial common market in agricultural goods. The French are growing impatient and the West Germans remain reluctant to face the competition of French agriculture.

INDUSTRY IN FRANCE

Industrial regions frequently bear little relationship to physical. In the previous chapter, reference was made to the many small towns of France in which factory industry is carried on, but any consideration of the more developed centers of French industry was postponed. The predominant characteristics of French agriculture were until recently present also in French industry. It is old; it has shown a deep respect for tradition; it has been carried on in units that were often too small to compete with the corresponding industries of other countries. The use of mechanical power was adopted slowly, almost unwillingly, in the nineteenth century, and throughout that century and into the twentieth, domestic crafts in spinning, weaving, woodworking and leatherworking, and the production of jewelry, watches, and mechanical devices retained an importance that they had lost in Great Britain and the United



The rivers of Alpine France are dammed both for power generation and for the provision of water for irrigation. This scene shows the dam recently built across the Durance at Château Arneux. (N. J. G. Pounds.)

States. The very great use of hand labor, which characterized French industry, has made for a finesse and attention to style and detail in French products which have carried them into the markets of all the more wealthy countries of the world.

The situation has changed. Shortly after the Second World War the Monnet Plan for the modernization and development of French industry was introduced and rapidly pursued. Small-scale and craft industries have not been eliminated, and products continue to be offered for sale to the traveler. But factories have increased in number and size. This is particularly apparent in the iron and steel industry. Small and even primitive works in the Central Massif have largely been closed; new, large-scale and thoroughly up-to-date factories have been erected in Lorraine and the north. The same is true of the textile industries in the northern industrial region. France has become one of the world's leading producers of automobiles and aircraft. The production of the common acids, which are often an index of industrial growth, and the refining of oil and use of its by-products have undergone a very great expansion in the last 15 years. Cement production, a measure of the progress of construction, has increased threefold in this period.

The traditional French industries, the manufac-

ture of quality and luxury goods for a restricted clientele, remain important. But France's exports are now dominated, not by silks and the products of Parisian *haute couture*, but by automobiles and the products of mechanical engineering, by chemicals and textiles.

Iron ore is the only metallic mineral of significance in France today. In Lorraine are the largest deposits of iron ore to be found in Europe. This is a bedded ore of low grade—rarely with more than 30 per cent of metal content—but easily mined. It occurs in the Côtes de Moselle, where it was formerly mined in open-pit workings along the scarp, but now the ore is obtained either from drifts cut horizontally into the hillside or from shafts put down from the plateau surface behind the scarp. The ore is phosphoric. It could be worked into steel by the slow and laborious processes that were in use in the Middle Ages and in early modern times, but it was quite unsuited to the Bessemer converter, which was widely adopted in the 1860s. The ores were thenceforward considered of only slight importance until Gilchrist and Thomas, in 1878, introduced their basic method of producing steel. These deposits then gained steadily in importance. Being of a low grade, they do not readily stand the high cost of transport. While ore has been exported to

neighboring countries, especially Germany and Belgium, a large part of it is smelted in Lorraine and in nearby Luxembourg.

The only other iron-ore deposits of significance in present-day France are those of Caen in Normandy, which are in part smelted near the mines.

France's great reserves of iron ore are not in any way matched by her coal deposits. She has a number of small coalfields, individually of slight value. In the interwar years her total output rarely amounted to more than half her requirements.

The northern coalfield is a continuation into France of the coalfield of Belgium. The coal measures lie beneath a cover of later deposits and, on this account, were not discovered until the eighteenth century. The field extends from the Belgian border near Valenciennes eastward to Béthune, a distance of about 60 miles, and has a width of about 10 miles. The average depth of the mines is about 1,250 feet. In comparison with those of other coalfields of Europe, the seams are thin and separated by considerable thicknesses of unproductive rock. The coal seams have been much folded and faulted and are relatively difficult to work. The field is therefore a high-cost producer and retains its importance in the French economy only because it has been able to attract cheap foreign labor. On the other hand, much of its surface equipment is new and efficient, having been built in the 1920s to replace that which was destroyed during the First World War. The coal produced is mainly steam coal. Comparatively

little coal suitable for metallurgical coke is mined, and there is no anthracite.

The Lorraine coalfield is a continuation of the deposits of the Saar Basin (page 261). Its development, around the towns of Forbach and Saint-Avold, has been comparatively recent and has reflected the demand for fuel in the nearby steel-producing area of Lorraine. The coal produced here is abundant, but not, however, of a coking quality.

On and about the Central Massif are a number of coal basins, all small and few of more than local importance. The basins themselves are generally bounded by faults and surrounded by rocks of a very much greater age. The most important of these fields (Fig. 14-2) are those of Le Creusot, Saint-Etienne, and Alès. Taken together, these fields do not yield much more than 20 per cent of France's coal output, but they are of considerable local importance, and each supports a small but significant mixed industrial area. The other fields of the massif are of even less economic significance.

The French deficiency in coal is to some extent met by the generation of hydroelectric power which is produced from the swift streams of the Alps, Pyrenees, and Central Massif. This development in the French Alps has been particularly great in the valleys of the Rhône, Isère, Arc, and Drac, where it is used in part by the railways, in part by electrochemical and electrometallurgical industries. In both the Alps and Pyrenees the

France's growing petroleum industry is illustrated by the refinery of Lacq, recently built on the oil and gas field along the northern margin of the Pyrenees. (N. J. G. Pounds.)



current is generated from the streams which are impounded behind dams and released to flow through turbines. The most important of the dams and the largest in western Europe is at Génissiat, on the Rhône about 30 miles from the Swiss frontier, where the river cuts across one of the ridges of the Jura. Others are located on the lower Rhône. The effect of these dams has been not only to increase greatly the amount of electric power generated in France but also to make the Rhône navigable to points above Lyon. Other dams are either built or projected elsewhere on the Rhône and along its Alpine tributaries.

The Pyrenees are at present less important than the Alps for the generation of hydroelectric power, in part because the rivers are smaller and their flow is less regular. The Central Massif and the Vosges are also the scenes of the development of hydroelectric power. The electric current is distributed by overhead cable over much of eastern and southeastern France. The hydroelectric stations, however, have generally to work in close association with steam-generating stations, which sometimes become necessary to supplement the low output of hydroelectric power in time of drought. Natural gas is of increasing importance and is being piped over considerable distances.

This discussion of French industry must not be allowed to detract attention from the very considerable expansion that has taken place in recent years. This growth is, in the main, the result of the plan for modernization of French industry, commonly known as the Monnet Plan, which was drawn up in 1946. Most of the developments since this date were envisaged in this and the succeeding plans. The development of hydroelectric power has encouraged the growth of the electrochemical and the electrometallurgical industries in the French Alps and the Pyrenees.

The coalfield of northern France and the iron field of Lorraine are the scenes of large and vigorous iron and steel industries. At the present time the plant is being extended and modernized. The output of steel in 1962 was 17.2 million tons a year, having risen from about 6 million tons on the eve of the Second World War. The French iron industry suffers, however, from an acute

shortage of metallurgical coke, for which France has to depend heavily upon Germany.

Other industries which are carried on in factories and on a large scale are the manufacture of textiles, both cotton and woollen, in the north-east: the silk manufacture in the Rhône Valley; and the automobile industry in Greater Paris.

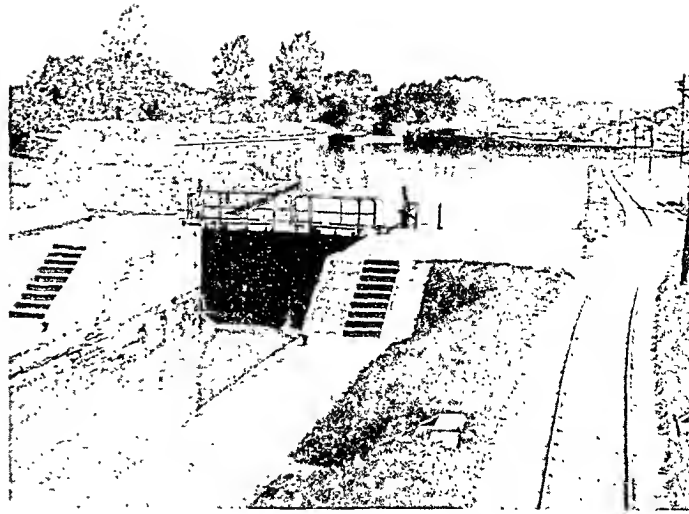
France has never, like Great Britain and Germany, passed through a phase of intensive and rapid industrialization. But factory industries have been increasing steadily in importance since the later years of the nineteenth century. This continued growth of factory industries is in evidence today. They are increasingly important relative to the "luxury" industries, for which France is probably more widely known.

COMMUNICATIONS AND PORTS

Communications were developed in France at a relatively early date, and they remain today probably more complete and of an overall higher quality than those of any other continental European country. A network of Roman roads radiated from Lyon. This road system has been supplemented and reoriented so that it now focuses on Paris and serves to bind the provinces to the capital. The present magnificent network of *routes nationales* is in large measure the creation of the nineteenth century.

Canal development also took place at an earlier date than in other European countries. Navigable rivers had been much used during the Middle Ages, and from the seventeenth century attempts were made to join up the rivers with canals and to establish a system of inland navigation. France is naturally suited for the development of canal transportation. The wide extent of low-lying country, the numerous gaps between the hills, and the high rainfall all make the construction and maintenance of canals easier than in many other countries. By the middle of the nineteenth century all the main natural waterways had been connected with one another by canals. In 1879, the French canal system was unified by Freycinet. Two standard sizes of barges were adopted, and canals were adapted and classified according to their

The many large rivers and the gentle terrain of much of France has made canal building relatively easy. Barge transportation remains of very great importance. This scene is on the Oise navigation, which links the Paris region with the industrial north. (N. J. G. Pounds.)



ability to take the smaller or both. Certain rivers are much used: the Seine up to Paris, the lower sections of the Oise and Marne, the Rhine, and the lowermost course of the Rhône. The canals of northeastern France and the important waterway which links the Marne with Lorraine and with the Rhine at Strasbourg all bear a considerable traffic. The canalized Moselle has recently been opened to navigation, and may be expected in the near future to carry a heavy traffic. Other canals are but little used. Barge traffic is slow and unsuited to commodities for which there is not a steady demand. Some two-thirds of all goods carried in recent years have been coal and building materials such as stone, timber, cement, and gravel.

France has a dense railway network which is particularly well developed in the northern half of the country. Many of the main lines have now been electrified, and railway services are particularly fast and efficient.

France is served by a small number of ports in relation to the length of its coastline and the volume of its trade. They may be grouped into those engaged primarily in the passenger traffic and those whose business is mainly in freight. The former group includes the packet stations of Dunkirk, which belongs to both groups, Calais (74,600), Boulogne, and Dieppe, which handle the cross-channel passenger service and have good rail connections with Paris. Cherbourg is a passenger port but serves only the transatlantic liners, which pause here to embark or disembark passengers. The port

lies on the northern coast of the Cotentin peninsula and is linked with Paris by fast boat trains. In this way the transatlantic traveler can save many hours in reaching Paris while the boat sails to Le Havre. Marseille, primarily a cargo port, also has a considerable movement of passengers.

The most important French ports, in volume of merchandise handled, are Marseille, Rouen, Le Havre, Dunkirk, Bordeaux, Nantes (328,000), Saint-Nazaire, Caen (117,000), Boulogne, and Sète (formerly Cette). The first three of these handle over half the total seaborne trade of France. Several ports of France are grouped in pairs, one at the head of an estuary or near the limit of navigation and one close to the open sea; Rouen and Le Havre, Nantes and Saint-Nazaire, Bordeaux and the several small ports on the Gironde. The inland port is the older but has become gradually less accessible as the size of ships has increased. Many such ports are visited only by the smaller coastal craft. Strasbourg plays an important role as an inland port on the river Rhine.

FOREIGN TRADE

France is often cited as a country of varied resources and balanced development to which a degree of self-sufficiency is more natural than is the case of most industrialized countries of western Europe.

The food imports of France are relatively small. France is near self-sufficiency in grain in good

years. There is a large import of cheap wine, but this comes mainly from Algeria. Tropical fats, sugar, coffee, and cocoa are among the more important food imports. More important than foodstuffs are raw materials for French industry. In the past about half the total coal used has been imported, much of it from Great Britain, though the proportion mined in France has increased in recent years. Much of the petroleum, all the cotton, and much of the wool, flax, and in recent years, raw silk are imported. Timber and wood pulp, nonferrous metals except aluminum, and even some iron ore are brought into France.

Among the exports of France a foremost place is occupied by textiles, especially those of high quality, metallurgical goods, paper and books, the more highly priced wines and spirits, and a wide range of *articles de luxe*. In the French trade balance must also be included the not inconsiderable sums of money brought into the country by foreign travelers. France exports her culture and her scenery.

TABLE 15-2. Chief Elements in France's Foreign Trade, 1962 (In Millions of New Francs)

Item	Imports	Exports
Food	5,590.7	3,821.0
Beverages and tobacco	1,694.5	1,258.2
Crude materials, inedible	6,820.7	2,886.5
Mineral fuels	5,721.8	1,372.0
Animal and vegetable oils and fats	486.1	117.6
Chemicals	2,068.9	3,233.1
Manufactured goods	6,061.4	10,518.5
Machinery and transport equipment	6,994.4	9,751.6
Miscellaneous manufactures	1,657.3	3,158.1
Miscellaneous transactions and commodities	5.4	216.3
Total	37,101.1	36,332.9

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1963.

CONCLUSION

In 1870, and in the World Wars of 1914 and 1940, France was invaded by the Germans. On each occasion great material damage was done and the economy of the country was disrupted. Physical damage was greatest during the First World War, when for 4 years much of northern and northeastern France was fought over and its forests, villages, and factories destroyed. During the Second World War the material damage was localized around Calais and Dunkirk, in the heavily bombed ports such as Brest and Le Havre, and where the Allied landings were made in 1944. The heaviest destruction was in Normandy, where the city of Caen has now been rebuilt completely from its ruins.

On the other hand, more than 4 years of German occupation—with the Resistance Movement, or Maquis, conducting a civil war in many parts of the country, and the population in general being unwilling to assist the "Vichy" government because it, in its turn, was assisting the Germans—led to a slow impoverishment of the country. Plant and equipment were not maintained or replaced. French workers were conscripted to serve in German factories or to build the defense works of the German "Western Wall." The country was slowly "running down."

France has always shown an extraordinary vitality and power of recuperation. Her recovery from the war of 1870-1871 was fast enough to give the German Chancellor Bismarck serious cause for alarm. She recovered relatively quickly from the First World War, and her revival from the low ebb of 1945 has been no less marked.

This capacity in France derives in part from the balance which exists between factory industry and agriculture, from the relatively high degree of self-sufficiency of the country, and from the thrift of its people. It also owes something to the recognition that France has certain spiritual values which are worth retrieving. France is very conscious of being the most civilized country of Europe, and she will not readily abdicate her position.

Nevertheless, the postwar development of France would have been very much less marked without American economic and technical aid. The shattered transport system has been rebuilt, the coal mines are operating more successfully

than before the war, and the productivity and efficiency of agriculture have increased. At the same time, a considerable capital investment is now being made in French industry, power production and distribution and transportation.

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Luxembourg and Belgium

16

Belgium, Luxembourg, and the Netherlands have been closely associated for many centuries. Their territories were brought together in the fourteenth and fifteenth centuries by the dukes of Burgundy. An accident of history split them apart when the Dutch made good their bid for independence in the later years of the sixteenth century. Belgium and the Netherlands were reunited in 1815, and again separated 16 years later. Now, in the aftermath of the Second World War, great progress has been made in molding all three territories into a single economic unit. The three countries have much in common. The boundaries that divide them are arbitrary, their problems are similar, and their common fate during the years 1940 to 1945 has further strengthened the common factors which serve to hold them together.

The Low Countries together form a triangular-shaped territory, some 280 miles from the southern border of Luxembourg to the coast of Friesland in the north and 150 miles from western Flanders eastward to the German border. This territory constitutes a cross section through the hilly region of central Europe and the northern plain. The strongest feature in the relief of the Low Countries is the Ardennes Plateau in the south, lying generally above 1,500 feet. On the south the hard rocks of the Ardennes dip beneath

the younger and softer beds which make up most of Luxembourg. On the north also the Ardennes Plateau sinks beneath the chalk, which here forms a low, undulating plateau. The chalk in turn sinks beneath the sands and clays of the low plain of Flanders and of the Netherlands. Much of this land has been reclaimed by artificial enclosure and drainage in modern times. Much, on the other hand, is overlain with sterile deposits of sand and gravel, the outwash distributed from the ice sheets.

These three countries remain, despite their close association with one another, separate and sovereign states. In this chapter we take up the study of Belgium and Luxembourg, leaving the Netherlands until the next.

Luxembourg

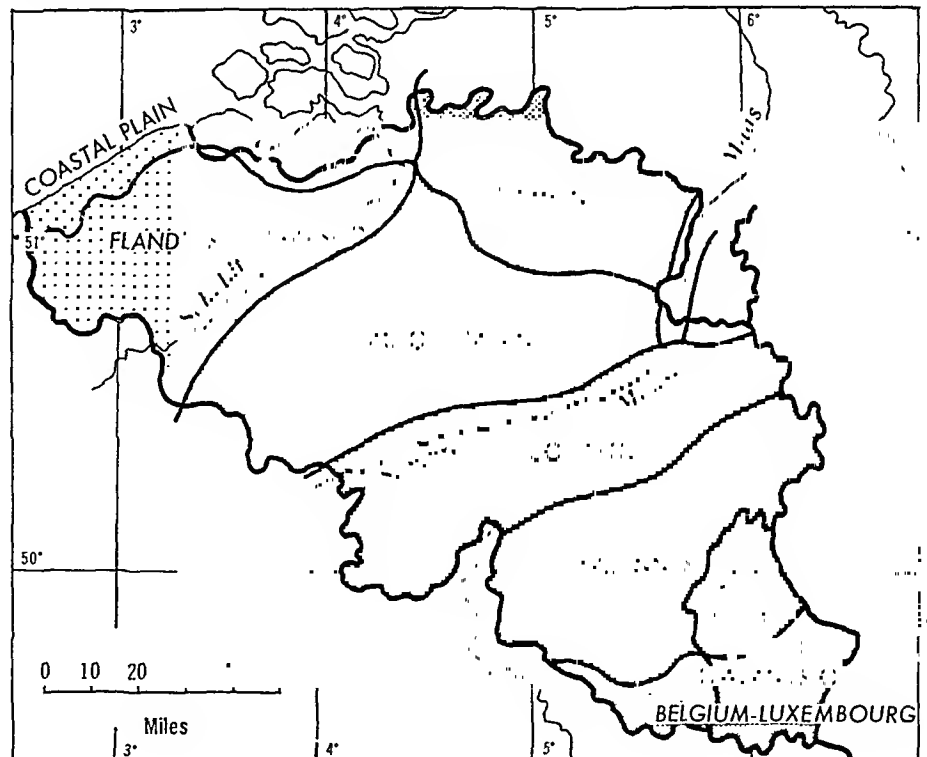
The smallest of the three units that make up Benelux achieved its present shape in 1867, when an earlier and larger Luxembourg was divided into

a French-speaking and a German-speaking part and the former annexed to Belgium. The grand duchy survived as a German-speaking sovereign state in customs union with Germany. After the First World War it entered into customs union with Belgium.

It has an area of only 998 square miles and a population of about 324,000 (1962). The capital and largest city of the grand duchy, Luxembourg itself, has a population of 73,200.

Luxembourg can be divided into two regions, almost equal in area. The more northerly is part of the Ardennes Plateau. To the south is a region of low, rolling country, similar to that of northern Lorraine. In the south are several small fingers of limestone upland thrust northward from the Côtes de Moselle. They overlook an undulating plain in which rather sterile, forested sandstone ridges alternate with more fertile, more intensively cultivated areas of limestone and clay. The region is a distinctive one and, in contrast to the Ardennes, has gained the name of Gutland (*le bon*

FIGURE 16-1. Belgium: landform regions.



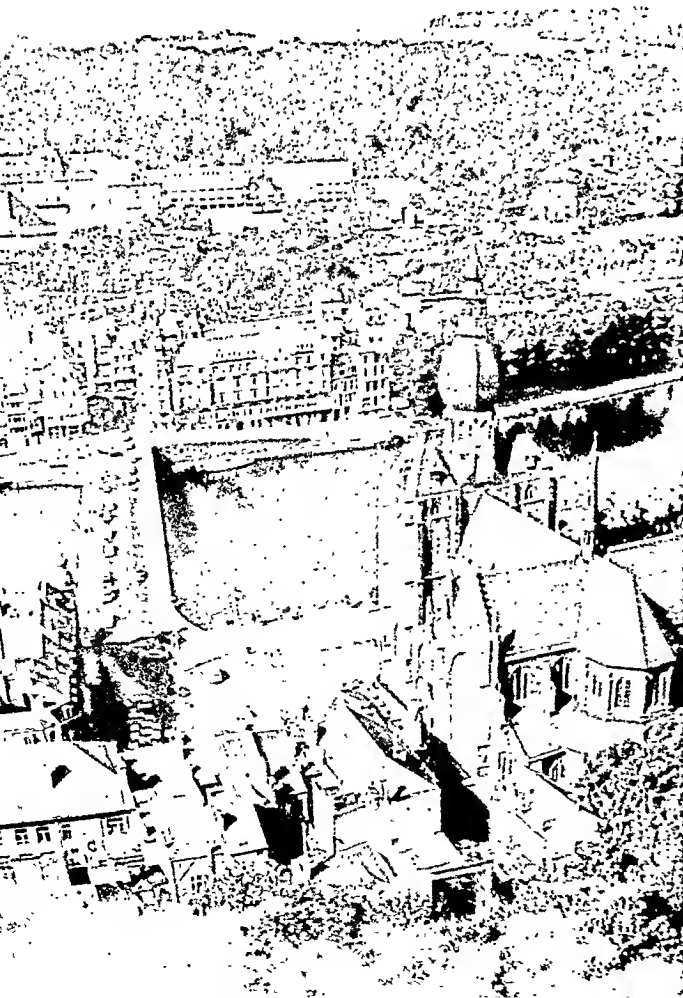
pays, or "good land"). Along the southern margin of Luxembourg there occur deposits of bedded iron ore similar to those of Lorraine, with which, in fact, they are continuous. These ores are mined, and are smelted locally. In 1962 the production of ore was about 1,793,000 tons, metal content, and had to be supplemented by imports from France. Apart from the metallurgical centers along the southern margin there are few towns, but many large, rich, and picturesque villages. The city of Luxembourg itself, capital of the grand duchy, is a small commercial city, picturesquely situated above the deep, winding valley of the Alzette.

The Ardennes of Luxembourg are a mass of rounded hills, separated by deep valleys. The area is forested. The climate is cooler and moister than in southern Luxembourg. The soil is thinner and poorer, and agriculture is little practiced and un-

important. The Ardennes of Luxembourg are continued without interruption in the Ardennes of southern Belgium.

Luxembourg is rich and prosperous by virtue of her iron and steel industry (see page 212-213). This employs half the working population and contributes about 30 per cent to the total steel output of the Benelux Union. Before the war the annual output of steel averaged about 2 million tons. Postwar production has been hampered by problems of reorganization and the supply of materials, but despite this, output has increased to 4,010,000 tons in 1962. Despite the possession of local low-grade ore, Luxembourg uses some ore imported from Sweden and Lorraine. Her most serious problem, however, lies in the supply of coke for the furnaces, and for this she is largely dependent on imports from western Germany.

Luxembourg is a peaceful and prosperous coun-



Dinant lies spread out along the narrow valley of the Meuse, cut into the rolling tableland of the Condroz. (Belgian Government Information Center.)

try, heavily dependent for her well-being on the export of her principal manufacture, steel, and on the import of foodstuffs to supplement her inadequate home production. Less than a quarter of the employed population is engaged in agriculture.

Belgium

Belgium, like Luxembourg, is made up of two contrasted regions, the southerly, more hilly region of the Ardennes and a more northerly region of plain, in which lie most of the industrial cities of Belgium. The latter can be divided into the low, rolling country of Hainaut, Brabant, and Hesbaye and the almost level plains of Flanders. To the northeast is an area, known as the Campine, made up of outwash sands and gravels, which today constitutes a rather infertile area of heathland.

ARDENNES

The surface of Ardennes Plateau reaches heights of up to 2,000 feet. The massif ends abruptly on the south and west, where it just reaches into France; on the north it drops more gradually to a more dissected region known as the Condroz, while eastward it continues, as the Eifel, into Germany. Rivers have deepened their courses into the ancient rocks of the plateau, and the Meuse, which crosses the region from south to north, occupies a valley with deep, incised meanders. In the center of the region, however, the plateau has but slight relief and the small streams occupy shallow depressions. The area has a poor podsolic soil and a wet, chilly climate. Small peasant holdings are numerous, and agriculture is based on cattle rearing and the cultivation of hardy crops. The steeper slopes and the borders of the Ardennes are thickly wooded with oak and beech. It has been the forests, rather than the altitude or the relief, that have given to the Ardennes their reputation as a pathless and impenetrable waste.

On the northern edge of the Ardennes is the more broken and generally lower region known

as the Condroz. It is also built of ancient rocks, among which limestone is conspicuous, and along its northern edge limestone comes to the surface. It is a region of greater scenic beauty than the Ardennes Plateau. The rivers have cut narrow gorges across the limestone ridges, and there are caves and underground streams characteristic of limestone topography. It also has greater agricultural possibilities and is more populous than the Ardennes. Crop farming is more widespread and more productive, and the rye and potatoes of the plateau give place gradually to the wheat and oats of the lowlands. In the Condroz Hills are a number of resorts, such as Spa and Dinant, and the greater agricultural possibilities are reflected in the number of small market towns.

THE INDUSTRIAL REGION OF CENTRAL BELGIUM AND LIMBURG

The river Sambre rises within France and flows eastward to join the Meuse at Namur. As far as Liège the Meuse keeps close to the margin of the Condroz and then swings away across the northern plain. The coal measures come to the surface along the valley of the Sambre and the Meuse between Namur and Liège. An industrial region has grown up here and spread both southward into the Ardennes foothills and northward on to the plain.

This industrial region is based on the local deposits of coal. It extends for about 100 miles from west to east. Coal does not, however, occur continuously throughout this belt, and the industrial, urban areas are interrupted by stretches of open country. In the west, the region of Mons (*Fl.* Bergen), known as the "Borinage," is primarily a coal-mining area. Manufacturing industries are relatively less important, though the manufacture of earthenware and the coking and briquetting of coal are carried on. The Charleroi Basin lies a short distance to the east in the Sambre Valley. Coal output is greater here than in the Borinage, and a vast number of manufacturing industries—metallurgical, engineering, chemical, pottery, and glass—have grown up. Charleroi itself is merely the center of a great number of small industrial towns which have grown into one an-

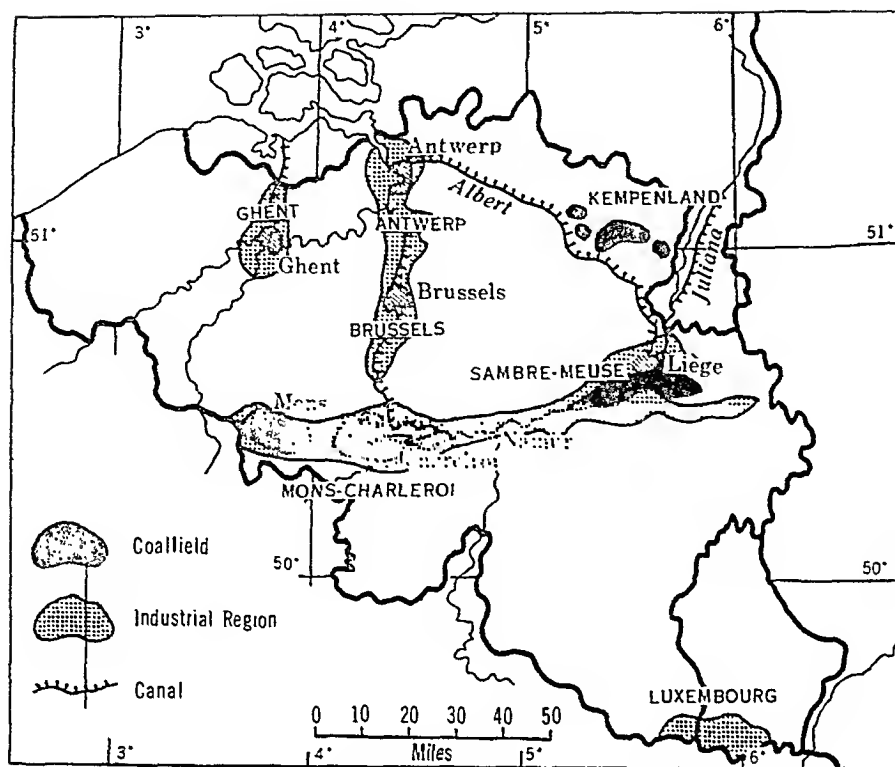


FIGURE 16-2. Belgium: coalfields and industrial regions.

other and reach westward along the Canal du Centre, the canal that traverses this part of the coalfield, for a large part of the distance to Mons.

Between the Charleroi industrial area and that of Liège manufacturing is less developed. Liège (*Fl*: Luik, 153,000; *G*: Lüttich)¹ lies on the Meuse, near its junction with the Vesdre and the Ourthe and on the edge of the Ardennes, where, during the Middle Ages, iron ore was mined and worked. This metallurgical industry later moved into the Meuse Valley where coal was available for the furnaces. The smelting and manufacture of zinc, mined in the Ardennes, were later added to that of iron. Liège was already an important industrial center when, early in the nineteenth century, the English industrialist Cockerill brought the techniques newly developed in England. The local coal proved to be suitable for metallurgical use. A modern iron-smelting industry was established, and an iron- and steel-finishing industry grew up. Liège now pro-

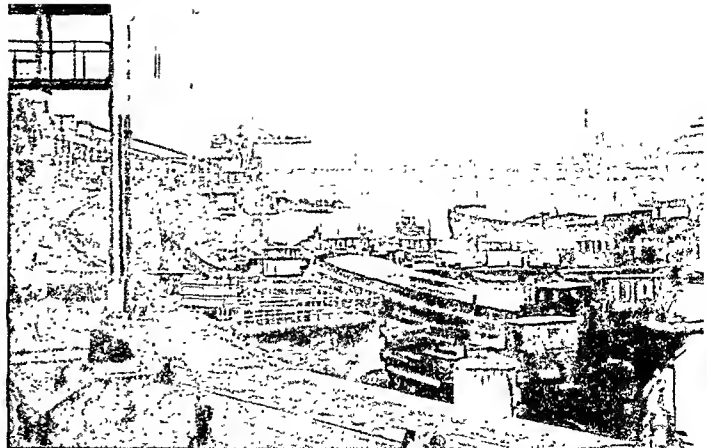
duces an immense range of finished steel goods, ranging from wire and nails to railway engines and automobiles. The zinc-smelting and galvanizing industry, which grew up on the basis of local materials, is now maintained by imports of zinc and zinc ore.

In the valley of the Vesdre, to the southeast of Liège, is the town of Verviers, where was established at the end of the eighteenth century the manufacture of woolen cloth. This was the earliest mechanically driven textile mill to be established on the continent of Europe and owed its origin to that same Cockerill family which had been largely instrumental in developing the steel industry of Liège. Verviers and its surrounding villages now produce a great deal more than half the woolen cloth of Belgium and, in addition, wash and prepare the wool that is used in the spinning and weaving industries of other parts of the country. Verviers is also the site of an important glass industry.

The river Meuse formerly served as a means of communication between parts of the coalfield and

¹ Estimated population in 1962. The size is given only of cities of more than 100,000.

The Meuse at Liège is lined with iron- and steelworks and busy with the barges which bring coal, ore, and scrap metal to the furnaces. (N. J. G. Pounds.)



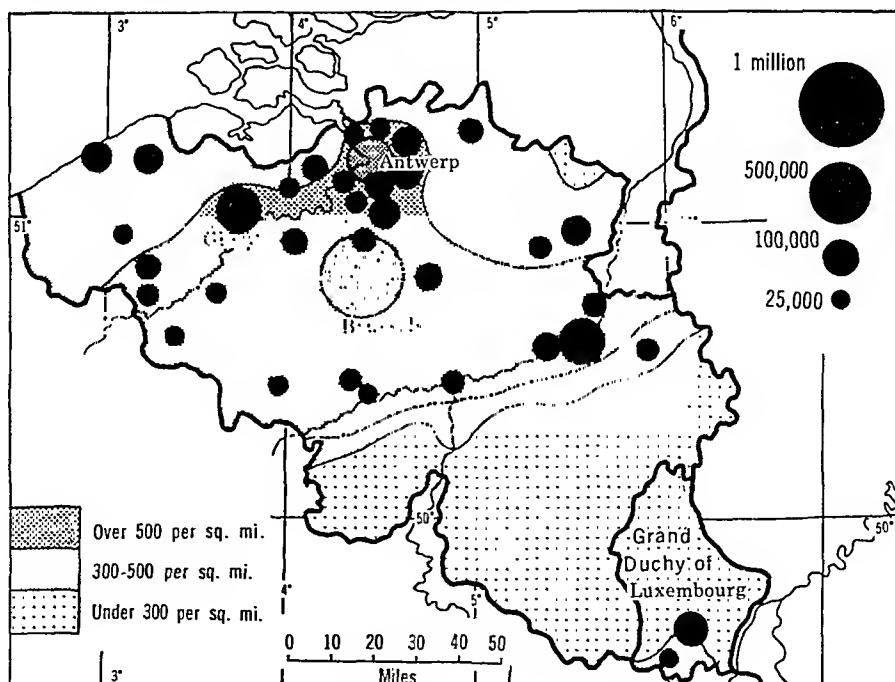
the Liège industrial area. The increasing size of barges rendered navigation difficult. A canal was first constructed in the nineteenth century from Liège to the Belgian port of Antwerp. This was too small for modern needs, and in 1940 the Albert Canal was opened. This is a large and modern ship canal between the Meuse at Liège and the navigable Scheldt at Antwerp.

The territory of the Netherlands extends southward to the foothills of the Ardennes a few miles to the northeast of Liège. This area of South Limburg contains a small coalfield which is similar

to, though geologically distinct from, that of the Meuse Valley. This Limburg coalfield is a continuation to the west of the Aachen coalfield (see page 229) of western Germany, and is itself continued westward in the Campine, or Kempenland, coalfield of Belgium (Fig. 16-2).

The Sambre-Meuse coalfield of Belgium produces at present about 12 million tons of coal annually. But reserves are comparatively small, many of the mines are old and do not readily lend themselves to modernization, the seams are thin and steeply inclined, and firedamp is a serious

FIGURE 16-3. Belgium: distribution of population and of the larger cities.



hazard. The creation of a common market in coal placed these mines in a very disadvantageous position, and the European Coal and Steel Community has given some assistance to the Belgian coal-mining industry, helping it to meet the problems created by the fierce competition of cheaper German coal.

The coalfield of Dutch Limburg and its continuation westward into the Kempenland area of Belgium developed very much more recently. The first of the present Dutch mines was brought into production at the beginning of the present century, and the first Belgian mine in 1917. The mines are modern, well equipped, and efficient. The output of coal per worker is higher in this coalfield than in any other in Europe. At present the output from the Belgian Kempenland is about 9.6 million tons.

PLATEAU OF HAINAUT, BRABANT, AND HESBAYE

A few miles to the north of the Meuse and Sambre the chalk overlies the coal-bearing beds. No relief feature marks this change, but the aspect of the land alters. The wooded *bocage* of the wet Ardennes and Condroz ends; the rolling plain of chalk, overlain in many parts by a shallow dusting of the fertile loess, appears to stretch without interruption or limit. Fields are large, open, and unfenced, divided into cultivation strips by unseen boundaries. Roads run straight to the horizon, bordered by their lines of trees. Villages are large and compact, and isolated settlements are as rare as the small patches of woodland, which sometimes break the monotony of the patchwork of cultivated fields. This is rich agricultural land, dotted with a close pattern of market towns, whose architecture bears witness to a long period of prosperity. Louvain (*Fl*: Leuven) with its richly decorated town hall, Tongeren (*Fl*: Tongres), Tirimont (*Fl*: Tienen), and Tournai (*Fl*: Doornik) all lie near the northern edge of the region.

Brussels (*F*: Bruxelles; *Fl*: Brussel, 1,030,000) is the largest and most important city and the capital of Belgium. It lies in the shallow valley of the Senne where the river flows from the

plateau of Brabant out on to the Flanders Plain. Brussels has all the appearances of a great capital. To the modern administrative buildings, museums, and palaces it adds the monuments of its great past: the town hall, lying in the center of the old city, and the cathedral of Sainte-Gudule, on the edge of the plateau to the east. Brussels is a smaller city than Paris but has a similarly varied range of industries, many of them crafts which demand a high degree of skill and sell at luxury prices: in addition there are many textile and food industries.

FLANDERS

The transition from the plateau of central Belgium to the plain of Flanders is gentle and inconspicuous, but the contrasts on each side are no less strongly marked than that from the Ardennes and Condroz to the plateau of Brabant. The change is not wholly due to the geological structure. Much of Flanders is floored with sands and clays and is low-lying and flat. The rivers, the Scheldt (*Fl*: Schelde; *F*: Escaut), Lys, and their tributaries, occupy valleys so shallow that the eye can scarcely detect the slope of their sides. The rivers wind sluggishly. Drainage from the land is slow and is assisted by drainage ditches cut around the margins of the fields. Even so, there remain small areas of bog, where rushes and osiers grow amid the stagnant, black, peat-stained pools. The sands and gravels which lie about the Flanders Plain in isolated patches often support poor woodland. Sometimes they have been cleared to make a dry site for a small, compact, red-roofed village, with a slender church steeple, visible for many miles across the flat land. All land that is capable of cultivation is under crops and is worked intensively. Holdings are very small, and only the most exacting labor can extract a livelihood from them for the peasant proprietors. Many, however, provide only a part-time occupation for people whose primary occupation is in factory industry.

The faint undulations of Flanders disappear toward the north. The sandy beds thin away and along the coast give place to a belt of flat, alluvial



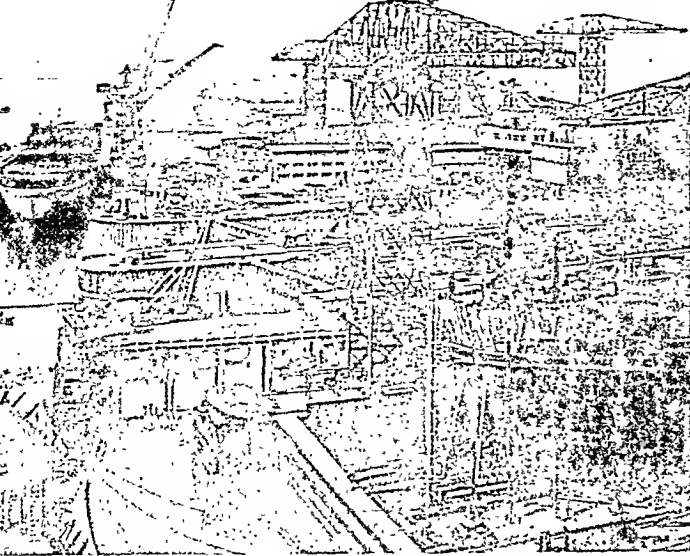
The Flanders Plain, with its drainage dikes, windmills, and avenues of poplar trees, is very similar to the Netherlands. The photograph shows the canal from Bruges to the coast at Sluys. (Belgian Government Information Center.)

land, cut off from the sea only by a range of sand dunes, supplemented by dikes, and in parts lying below sea level. Drainage is more difficult here, and crop farming less common. The grazing land is crossed by wide, straight canals, each flanked by low dikes. Villages are few and compact, gathered on outliers of the sandy soils for dryness and protection.

In Flanders are many of the oldest and most famous towns of Belgium, which in the Middle Ages established their fame for the manufacture of woolen cloth. In some, such as Ghent, Alost (*W*: Aalst), Courtrai (*Fl*: Kortrijk), Ypres (*Fl*: Ieper), is to be found the modern textile industry. Others have preserved the outward manifestations of this great past, such as Bruges (*Fl*: Brugge, 52,000), perhaps the loveliest medieval town in northwestern Europe, and Mechelen (*Fl*: Malines, 65,000). Ghent (*F*: Gand, 156,000) has developed modern textile industries, especially the manufacture of woolen and cotton cloth, and is now connected with the Scheldt estuary by a ship canal

along which factories have been developed. A number of towns of modern origin and growth, such as Lokeren and Sint-Niklaas, carry on the textile industry.

The largest city and greatest port of Flanders is Antwerp (*F*: Anvers; *Fl*: Antwerpen, 251,000), lying on the right bank of the lower Scheldt, close to the Dutch boundary. For a period of some 200 years the port was closed owing to the refusal of the Netherlands to allow vessels to and from Antwerp to pass through its territorial waters. Napoleon threw the port of Antwerp open to the commerce of the world at the beginning of the nineteenth century, and the city slowly regained its ancient prestige and importance. Its cathedral, town hall, guild houses, and churches belong to its medieval past; its docks and canals to its modern development. Antwerp is now the port for the industrial regions of Liège and the Kempenland. The Albert Canal, completed in 1940, puts it into close contact with the middle Meuse Valley. The Scheldt is navigable up to Ghent,



Antwerp is the largest port and second largest city of Belgium. It not only handles much of Belgium's seaborne commerce, but has also an important shipbuilding industry. (Belgian Government Information Center.)

and the waterways of the lower Meuse and Rhine allow barges to pass from Antwerp to the Rhine Valley. A number of manufacturing industries, including the smelting of imported ores, have been established near the port.

KEMPENLAND

East of the plain of Flanders is the sandy Kempenland, or Campine. The level of the land rises somewhat above that of the plain to the west. It is composed of sands and gravels laid down by the rivers. The soil is generally poor and infertile. In places, the sand blows into dunes when the surface vegetation is removed; elsewhere an impervious bed, a little below the surface, leads to the formation of springs, shallow lakes, and damp, peat-filled depressions. Much of the Kempenland has been cultivated but gives only a poor return. Crop farming has for many years been declining, and crop yields are in general below the average for Belgium as a whole. Some areas have never been cultivated and remain covered with a vegetation of dry heath; others have been planted with conifers. The aspect of the Kempenland is changing, however, with the opening of coal mines and the development of industries, particularly along the southern or Belgian margin of this territory.

THE BELGIAN STATE

The kingdom of Belgium has had a chequered history. Its territory formerly was part of the Spanish Netherlands, the northern part of which revolted

successfully in the sixteenth century. Belgium is that part which did not make good in its bid for independence. Its northern boundary was defined by the exigencies of war and its port of Antwerp was cut off from the sea by the Dutch province of Zeeland. The territory passed from Spain to Austria. In 1815 it was reunited with the Netherlands but revolted and in 1831 established its own independence, which has since been endangered only by German aggression.

Two languages are spoken in the Low Countries. In the southern half of Belgium the prevailing language is French. At an earlier date the Walloon dialect of French was spoken, but this has gradually given place to orthodox French. In northern Belgium and in the Netherlands the language is Flemish or Dutch. There is no appreciable difference between them; they were both Low German dialects which crystallized into languages in the Low Countries. German is the prevailing language of the grand duchy of Luxembourg. The most important linguistic frontier in the Low Countries is that between Walloon and Flemish. From near Ypres on the western border of Belgium it runs eastward through Brussels to the Meuse between Maastricht and Liège. From this point the boundary between Walloon and German extends southward across the Ardennes to the French frontier (see (Fig. 3-2).

Within Belgium, the differences between the Walloon and the Fleming go very deep and continue to arouse strong passions. From the early days of the Belgian State the French-speaking Walloons assumed an air of superiority and

made no attempt to disguise their contempt for the less-cultured Flemings. French was the language of government, of the courts of law, and of education. During the nineteenth century there was an awakening of Flemish consciousness, which developed into a vigorous nationalist movement. The hostility of the Flemings to the government in Brussels led some of them to become the willing tools of German imperialism. It should be emphasized that Flemish nationalism never received any overt support from the Dutch government. Generalization is difficult, but as a rule, the Fleming is more likely to be Catholic and royalist; the Walloon, agnostic, or at least anticlerical, and republican. Although the population has increased over the whole of Belgium, the rate of increase has slackened markedly in southern Belgium. It has been pointed out that there is a "close correlation between the areas of relatively stable population and the areas in which French is the common language,"¹ and this has been, until recently, in line with trends in France itself. At present the total Belgian population of 9,251,000 (1962) is about evenly divided between Walloon and Fleming, but the prospect of being outnumbered in the near future by the Flemings is not altogether pleasing to the Walloons, who have hitherto been in the majority.

Belgium was occupied by the Germans throughout both world wars. During the Second World War, Belgium was on the whole well treated. Her industries, already closely bound up with those of Germany, were integrated into the German system and were thus able to continue production. The Allied campaigns at the close of the war swept quickly through Belgium, and very little damage was done either to industrial equipment or to organization. After the war Belgium enjoyed a period of high prosperity. Life was gay in Brussels. The shops were full and food was abundant when austerity and even starvation existed in the rest of Europe. The economic policy of the Belgian government was wise and success-

ful, and though suffering from a shortage of coal and to some extent hindered at first by the slower recovery of Germany, Belgium has remained one of the most prosperous of European countries.

Belgium is primarily an industrial country, and over 50 per cent of the working population is employed in factories and mines. By contrast, only 13 per cent is on the land. Belgium is a considerable importer of foodstuffs for which she pays with the export of her manufactures. Table 16-1 relates to Belgium and Luxembourg.

Agriculture is carried on to a large extent on small holdings, in contrast with the relatively large farms of the Netherlands. In 1930, 74 per cent of the holdings were actually of less than 2 acres each and a further 17 per cent were between 2½ and 12½ acres. A very large proportion of these minute holdings, however, provide only a part-time occupation for industrial and town workers. These lie mainly in Brabant, Hainault, and Flanders, within easy reach of the urban centers.

TABLE 16-1. Chief Elements in Belgium and Luxembourg's Foreign Trade, 1962 (In Millions of Belgian Francs)

Item	Imports	Exports
Food	24,696.6	11,124.2
Beverages and tobacco	3,449.7	1,102.6
Crude materials, inedible	40,536.0	16,390.9
Mineral fuels	22,474.1	8,237.1
Animal and vegetable oils and fats	1,197.8	681.5
Chemicals	13,916.7	12,546.3
Manufactured goods	53,699.3	111,954.0
Machinery and transport equipment	53,645.0	35,288.5
Miscellaneous manufactured articles	13,382.8	13,772.1
Miscellaneous transactions and commodities	773.0	5,082.0
Total	227,770.9	216,179.3

¹ H. M. Kendall, "A Survey of Population Changes in Belgium," *A.A.A.G.*, XXVIII, 1938, pp. 145-164.

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1963.

Belgium lies where the hills of central Europe—here the Ardennes Plateau—approach to within a short distance of the coast. The Flanders Plain has tended to be used not only for the peaceful movement of goods between France and Germany but also for their military campaigns. It is not true that campaigns are not fought over the Ardennes. Rundstedt's offensive of 1944 took this course, but the majority have been in the lowlands between the Ardennes and the sea. Here are the fields of Ramillies, Jemmappes, and Waterloo, of Flanders and of Dunkirk. Belgium was from the start a small and militarily weak power in a position of great strategic importance. She defended herself by her policy of neutrality, of making no alliances, and of taking no sides from 1831 until 1914, when she was invaded by the Germans. Since then she has been active in

plans for western European union, and the Belgian capital of Brussels is now the headquarters of the European Common Market, as Luxembourg is of the Coal and Steel Community.

During the later years of the nineteenth century, Belgium acquired, through no efforts on her own part, a vast empire in Central Africa. Not only did this empire contribute directly to the trade and prosperity of Belgium, but through its sales of materials to other parts of the world, it brought in to Belgium a flow of "hard" currencies. In 1960 this huge empire broke away and established a political independence for which the Belgians had done little to prepare it. Until 1962 Belgium continued to administer the small trusteeship territory of Ruanda-Urundi, and in that year this territory also became independent, as the republics of Rwanda and Burundi.

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The Netherlands

17

The boundary between Belgium and the Netherlands traverses the Kempenland from east to west. Although this line was achieved almost by accident—it derives in the main from the course of the fighting between the Dutch and the Spaniards early in the seventeenth century—it has the merit of running through sparsely peopled areas.

The Kempenland of the Netherlands resembles the corresponding area of Belgium in having a poor soil and sparse population. A consequence of its slender natural endowment has been the poverty of its people, and their willingness to accept low wages attracted industries to this area. Close to the Kempenland or along its northern edge are the cities of Breda (113,000)¹ and Tilburg (142,000), both having cloth industries, and Eindhoven (175,000), with the important electrical engineering works of Philips.

East of Kempenland is a southerly projection of Netherlands territory, known as "South Limburg." It follows the Meuse (*Dutch*: Maas) Valley and lies mainly to the east of the river. It extends into the Ardennes foothills and contains the only area of really hilly country in the whole of the Netherlands. South Limburg contains an important coalfield, part of the coalfield that extends from Aachen in Germany westward into the Belgian Kempen-

¹ The population in 1963 is given for all cities of over 100,000.

land. Large-scale coal mining is fairly recent in South Limburg. The mines are deep, but production is highly mechanized, and the Limburg field is probably the most efficient in Europe.

On the west bank of the Meuse, very close to the Belgian boundary, is Maastricht, an ancient city of Roman origin, at a crossing of the river Meuse.

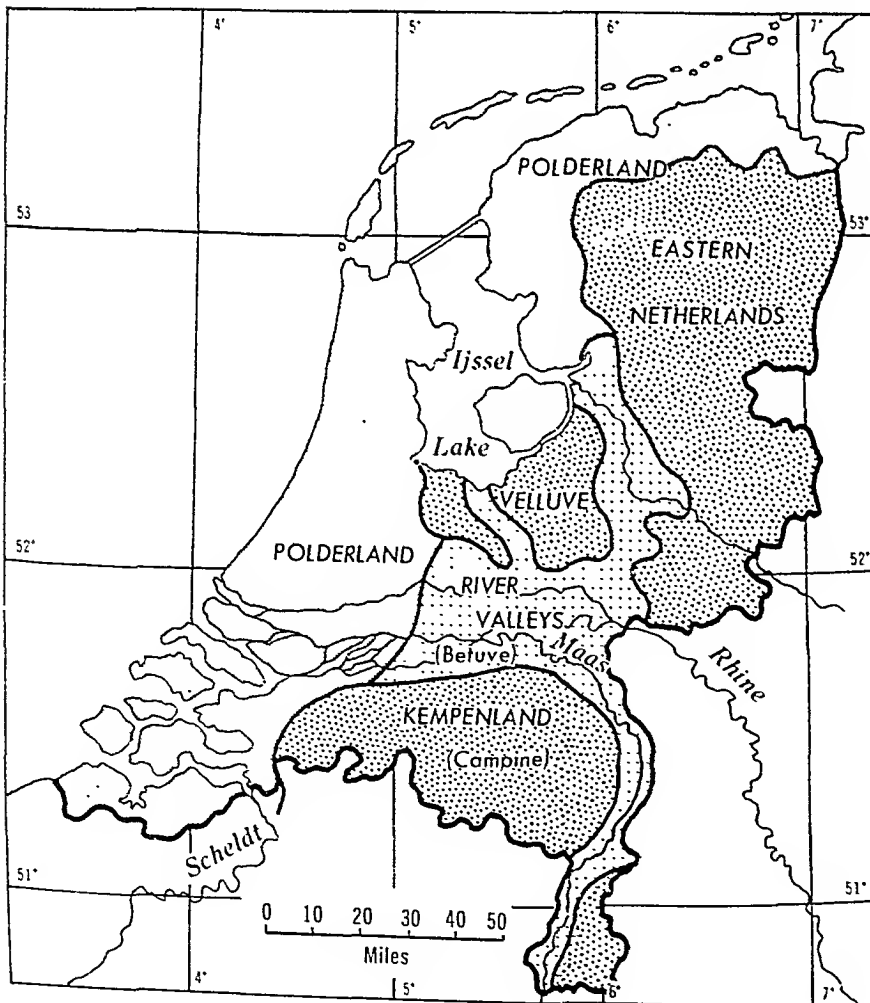
The area of the Netherlands north of the Kempenland owes its present form in part to the work of the glaciers of the Ice Age and the post-glacial sinking of the land surface, in part to the work of man in reclaiming the area and bringing it into agricultural use.

The ice extended southward to a line somewhat north of the course of the lower Rhine,

which was itself diverted to its present westerly course by the ice sheet. There are considerable areas of sand and gravel, remains of the terminal moraines and outwash fans of the former glaciers. After the Ice Age the land surface sank relative to the sea. Toward the east alluvium was laid down by the Rhine and now constitutes the damp and level plains along each bank of the Rhine and of its distributary the IJssel.

To the west of the present territory of the Netherlands many low islands were formed by the submergence. Wind, waves, and currents combined to build a natural barrier of sand and silt along their western margin, protecting the lagoons and islands inside it. In the course of time the islands grew larger as a result of sedimentation

FIGURE 17-1. Netherlands: landform regions.





Much of the Netherlands has been reclaimed from below sea level, and work is now proceeding on the reclamation of the Zuider Zee. The photograph shows Schokland, once a small island in the Zuider Zee, now surrounded by the regular fields of the reclaimed polder. (*Netherlands Information Service.*)

and the lakes smaller. Most of the latter have filled with silt or peat and have been reclaimed by man for his use.

We thus have in the Netherlands a western region of low and almost level land, much of it actually below mean sea level, all of it kept dry for agricultural use only by careful drainage and the continuous pumping of water from the ditches that surround the fields. This is the polderland of the Netherlands.

To the east the land is somewhat higher. In part it consists of alluvium along the rivers, still low-lying and liable to flood in winter but generally a foot or two above the level of the polderland. But most of eastern Netherlands is covered with sandy and gravelly deposits left by the glaciers of the Ice Age. The soil over these areas is thin and poor. It formerly gave only small crops

and the population was scanty and poor. In recent years, however, vigorous and successful attempts have been made, with the help of fertilizers and deep plowing, to bring considerable areas of the heathland into cultivation.

THE POLDERLANDS

The contrast between the east and the west is dominant in the geography of the Netherlands. The western Netherlands is in large measure the creation of man during the past thousand years. It has been reclaimed from lake and swamp and shallow sea. This region formerly consisted of low, marshy islands, which made up the joint delta of the Rhine, Meuse, and Scheldt. The tide ran in and out between them, and along their outer, or seaward, margin the strong winds off the North

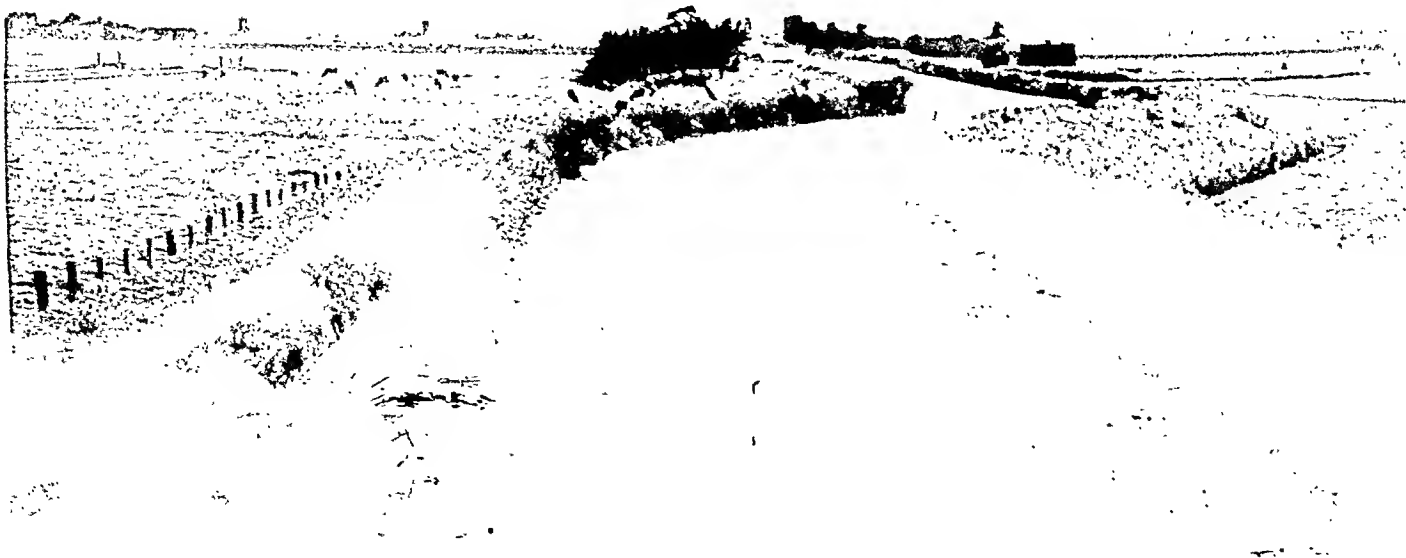
Sea piled up sand dunes, which gave some protection to the lagoons and islands. Nature was slowly modifying and, in general, enlarging the islands, but the process was immeasurably speeded up by man. During summer he built dikes around the drier patches, strong enough to withstand the storms and floods of winter. He drained the land inside the dikes and preserved it for his own use. In time he added to it, enclosing adjoining areas of the mud with banks, freed it of its sea salt, and brought it into cultivation. In this way the multitude of islands grew toward one another, until only narrow channels, necessary to carry away the drainage, were left. The process was not uninterrupted; early in the fifteenth century there was a serious breakthrough of the sea, known as the Saint Elizabeth's Flood, which in part undid the work of centuries. But the task of diking and reclaiming continued vigorously through the later Middle Ages and modern times. The windmill, so

typical a feature of the Dutch polderland, was used to lift water from the reclaimed fields. Certain large and deep lakes, such as the Haarlemmermeer, were not drained until the nineteenth century, when the steam engine was employed for the purpose.

The extensive cutting of peat for fuel had complicated the drainage, because it led to the formation of small lakes. When drained, the peat areas tend to contract in thickness, thus lowering the surface and increasing the difficulties of drainage.

The latest development of land reclamation has been the drainage of the Zuider Zee. This is an extension on a very much larger scale of a process that has been going on for centuries. The work began in 1919. A large dike was built, 18 miles in length, across the entrance to the Zuider Zee. The reclamation of five large polders was planned within the lake thus formed. The smallest,

About a third of the country lies below the level of at least high tides, and rivers and drainage ditches, if they are to discharge to the sea, must flow above the level of the polders. This scene north of Rotterdam shows the river flowing a few feet above the fields. (Netherlands Information Service.)



the Wieringermeer Polder in the northwest, was completed first and was brought into cultivation in 1930. It is now mainly under crops—wheat, barley, oats, potatoes. It is a level area of about 80 square miles, lying in general 20 feet below the mean sea level at Amsterdam, crisscrossed by the narrow drainage ditches, such as are illustrated in Photo 17-3, which carry the water from the fields to the pumps which raise it to the level of the sea.

The Northeastern and Eastern Polders have now been reclaimed, and work is proceeding on the Southwestern and Southern (Fig. 17-2). When finished, the drainage will have added about 900 square miles to the land area of the Netherlands, and the Zuider Zee will have been reduced to the very much smaller IJsselmeer. To the northeast of the Zuider Zee the polders extend into Friesland and Groningen.

The Delta Plan is an even bolder undertaking.

The great floods of 1953 did immense damage to the islands which make up the joint delta of the Rhine and Meuse. The plan is to build an immense dam from island to island along the outer edge of the delta, and thus to exclude the tide from the waterways which separate them. Only the Scheldt estuary would be left open both to the tide and to ocean shipping. (Fig. 17-3).

Both the peat and the silt areas of the Polderland are very fertile and bear good crops of wheat and other grains. Crop husbandry depends upon the level of the water table. Where this is high, the land has to be left under grass. In certain areas there are local specialties, such as the bulbs, especially tulips, around Haarlem. These are grown on soil that has been lightened by an admixture of sand. Along the western edge of the Polderland is a narrow belt of land along which sand, blown inland from the dunes, has been deposited. This rather "warmer" soil is intensively

The original land reclamation was by means of windmill drainage. The uncertain windmill has been replaced by diesel and other engines, but it remains an essential feature of the Dutch landscape. This cluster of windmills lies to the north of Amsterdam; they were formerly used to lift the water from the fields to the rivers and canals. (Netherlands Information Service.)

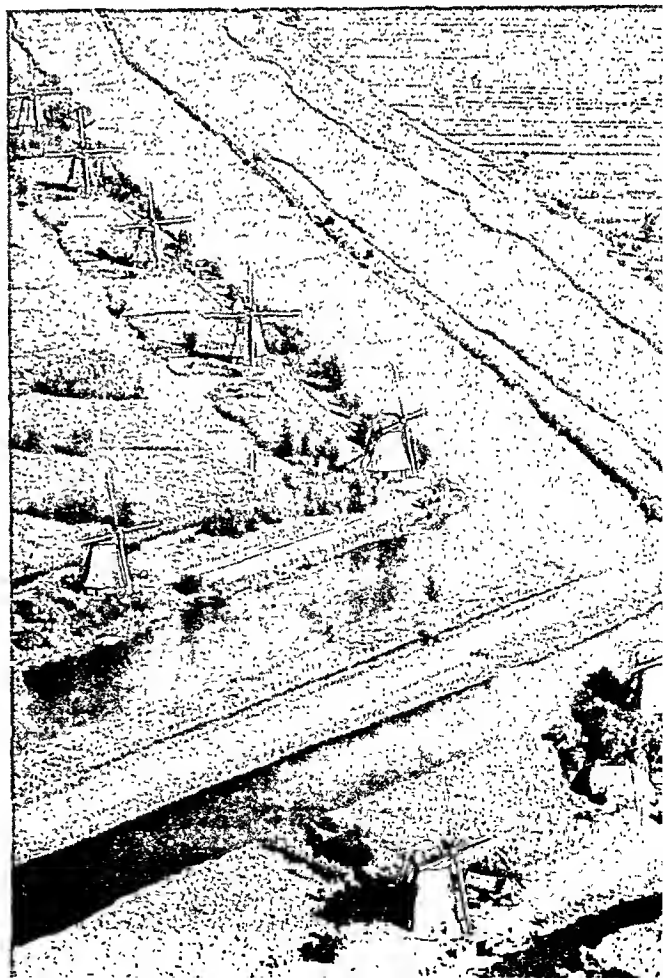




FIGURE 17-2. Reclamation of the Zuider Zee.

cultivated for vegetables and other garden produce. A good deal of this area is built over with greenhouses for the cultivation of early and tender plants.

Most of the polderland is divided into individual holdings. These are generally small, and a majority are of less than 25 acres. The farmsteads are scattered and often protected by a few trees to break the force of the wind.

In Zeeland and Holland are a number of small, ancient towns, founded on areas of dry land and sometimes still surrounded by their ancient water defenses, such as Leiden, Alkmaar, Haarlem (171,000), Delft, Utrecht (261,000), Dordrecht, and Middelburg. Some have developed modern industries. All are closely grouped as if to conserve space. They are clean, with the red brick houses that the Dutch masters used to paint, tall belfries, and richly carved and decorated town

halls. The cities of the western Netherlands are growing at a remarkable pace, and spreading over the polderland. Already a large part of the area between the IJssel Lake and the Rhine mouth is absorbed into the Amsterdam, Utrecht, and Rotterdam conurbations.

Three cities have outgrown their petty origins. The Hague (*Dutch*: Gravenhage, Den Haag, 604,000) is a well-laid-out city with broad streets and large modern government buildings. It is not primarily an industrial city. It had been a residence of the counts of Holland before the formation of the United Netherlands and continued to contain a royal palace and the seat of the government. Amsterdam (867,000) is the great banking and commercial city and the titular capital of the Netherlands. It grew up in the later Middle Ages where the little river Amstel was dammed as it flowed into the IJ. The rivers provided the growing

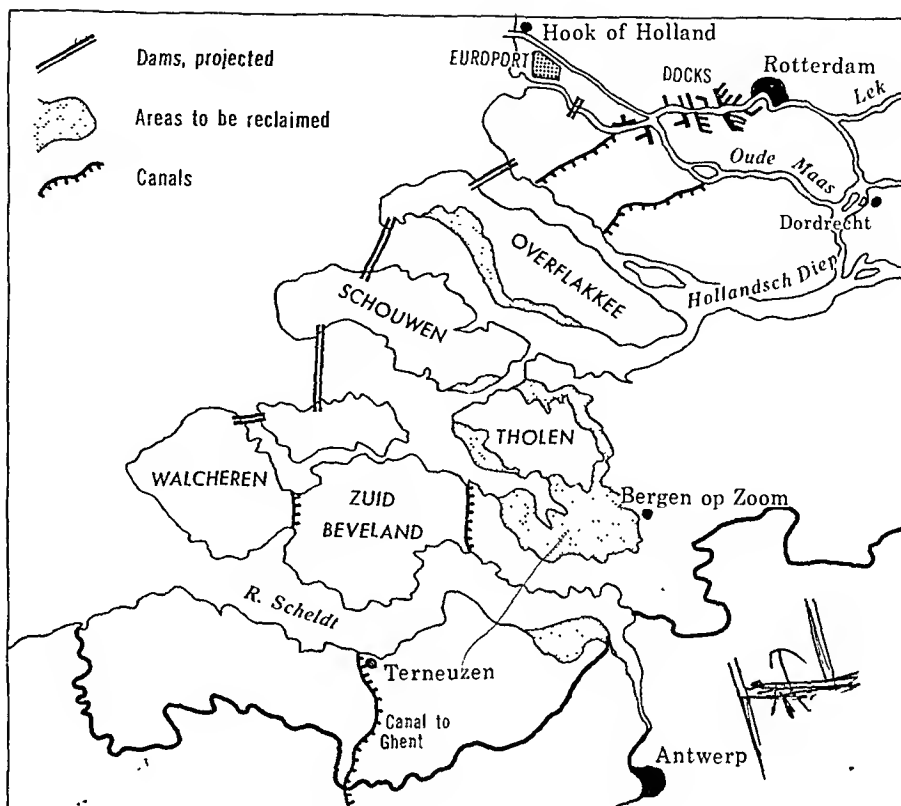


FIGURE 17-3. The Delta Project to enclose and reclaim much of the Rhine-Meuse-Scheldt delta.

town with a naturally protected harbor. The town was fortified, and its walls had at intervals to be moved farther out to enclose an expanding urban area. This became in the seventeenth and eighteenth centuries the port from which sailed the East Indiamen, and in the town were developed industries based on the products of the East which those ships brought back to Holland. Amsterdam had been approached by way of the Zuider Zee, but increasing difficulties of navigation led in 1876 to the cutting of the North Sea Canal from Amsterdam westward to the sea at IJmuiden. Large vessels now can enter the canal by locks at its western end and sail across the polder to the city. The trade of Amsterdam is chiefly the domestic trade of the Netherlands. It has good canal communications with most parts of the Netherlands. A large canal from Amsterdam to the Rhine puts Amsterdam in connection with the Ruhr industrial area, and to a small extent Amsterdam serves as a port for the latter. A small steel

industry has been established at Velsen, near the western end of the North Sea Canal. IJmuiden is the chief Dutch fishing port. The fisheries are of great importance in the Dutch economy and make a valuable contribution to the nation's food supply.

Rotterdam (731,000) has achieved the position of a great port only recently. It serves western Germany, and its prosperity depends largely upon the industrial and commercial activity of the Ruhr and Rhineland. The Rhine divides into distributaries which branch and reunite. Rotterdam grew up on one of these, the New Maas, some 20 miles from the sea. Its connection with the ocean was at first difficult, but the distribution of the Rhine on which it lies was improved, thus giving Rotterdam a straight, broad, and deep connection, known as the "New Waterway," with the sea. Most of the imports are transshipped to Rhine barges, which sail or are towed up the Rhine. Rotterdam has become an industrial town, but on a smaller scale than Amsterdam; the greater part of its traffic is in



Amsterdam is the largest city and the titular capital of the Netherlands. Built on an inlet of the Zuider Zee, it is now linked with the coast directly by a ship canal. Many of the streets of the city are formed by canals and much of its commerce is by barge. The photograph shows the center of the old city, with the dock area in the distance. (Netherlands Information Service.)

transit to or from Germany. At present a vast new dock system, Europort, is being constructed to the west of Rotterdam. Rotterdam was heavily damaged in the German air raids of May, 1940, but has been rebuilt. It is ironic that a city which suffered so severely at the hands of the Germans should

be dependent for its prosperity on a revival of the trade of the German Rhineland.

The area of polderland lying northeast of the Zuider Zee is partly under crops, partly grazing and dairy country. Leeuwarden and Groningen (149,000) are important market centers. The re-

gion is protected by dikes, and offshore lies the Frisian Island chain stretching from North Holland to the Danish peninsula's base. These are low, treeless, exposed, and partly dune-covered. Cattle rearing is the most important occupation.

VALLEYS OF THE RHINE AND MEUSE

The broad flat valley, the Betuwe, which contains the Meuse and the Waal and Lek branches of the Rhine extends eastward from the polderland of Zeeland and Holland. It lies above sea level but is nevertheless liable to flooding by the rivers, which sometimes mingle their waters over the intervening fields in times of severe flood. Most of this land is under crops. The valley of the Ijssel branches

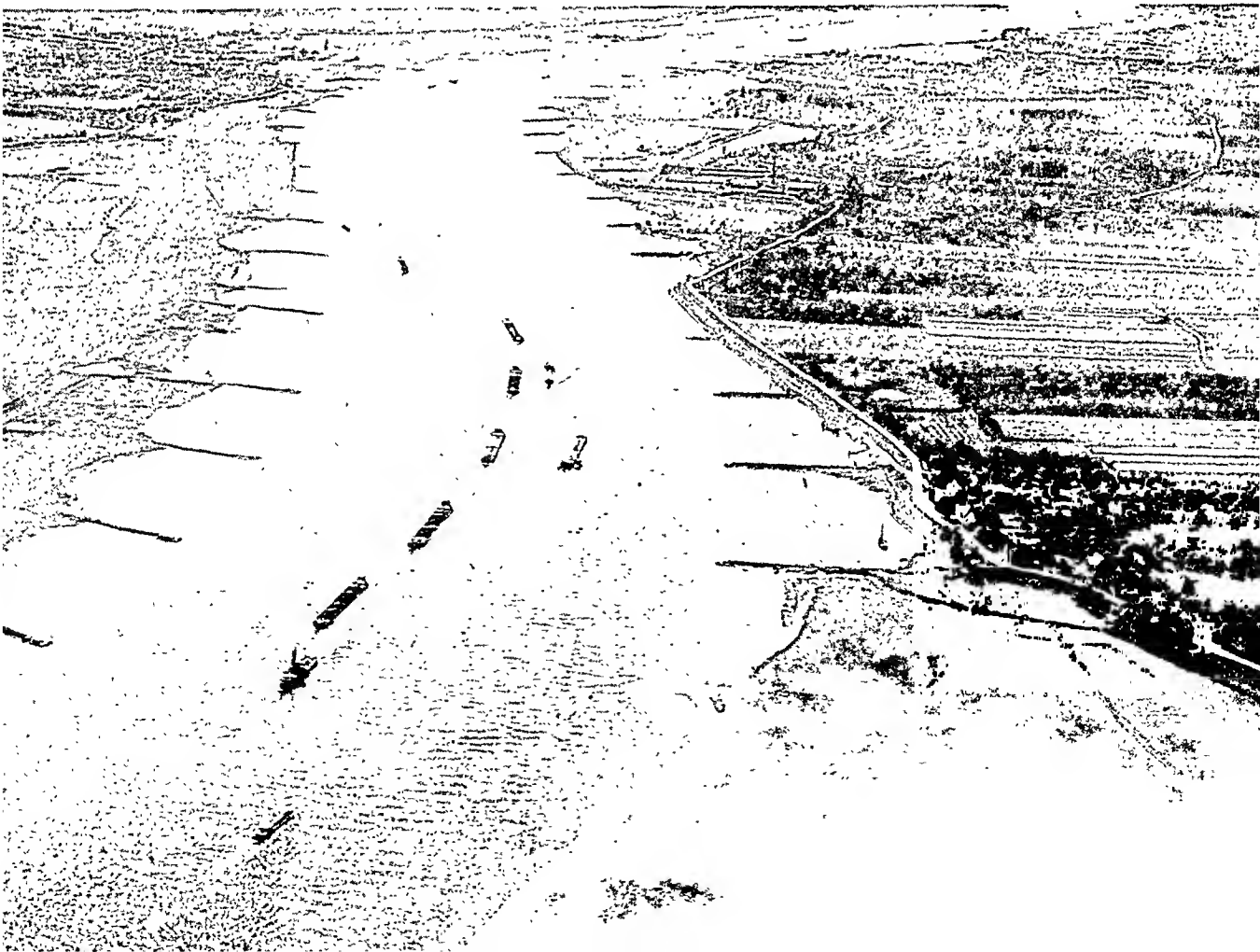
from that of the Rhine above Arnhem. This river no longer carries more than a small proportion of the discharge of the Rhine, but its valley, like the Betuwe, is chiefly under crops.

The Betuwe is not thickly peopled, but on the higher and drier land which borders it are a number of industrial cities, which include Nijmegen (136,000), on the southern bank of the Waal, and Arnhem (128,000), 10 miles away across the level alluvial plain.

EASTERN NETHERLANDS

To the south and east of the Zuider Zee and east of the valley of the Ijssel are large areas of glacial sands and gravels. Outwardly these resemble the

The Netherlands owes much to the Rhine, which serves as a commercial highway linking the Dutch ports with their German, French, and Swiss hinterlands. This photograph shows the busy Rhine waterway above Rotterdam. Note the polders on each side and the dykes built to protect the land from flooding. (Netherlands Information Service.)

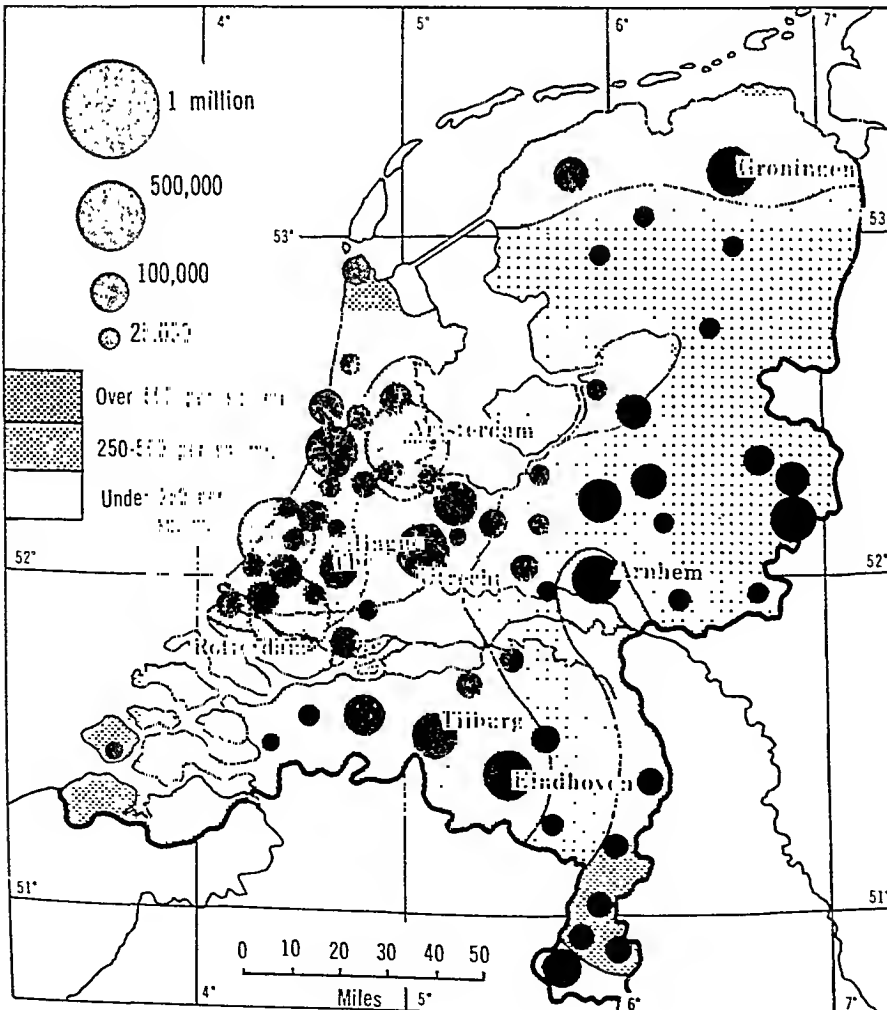


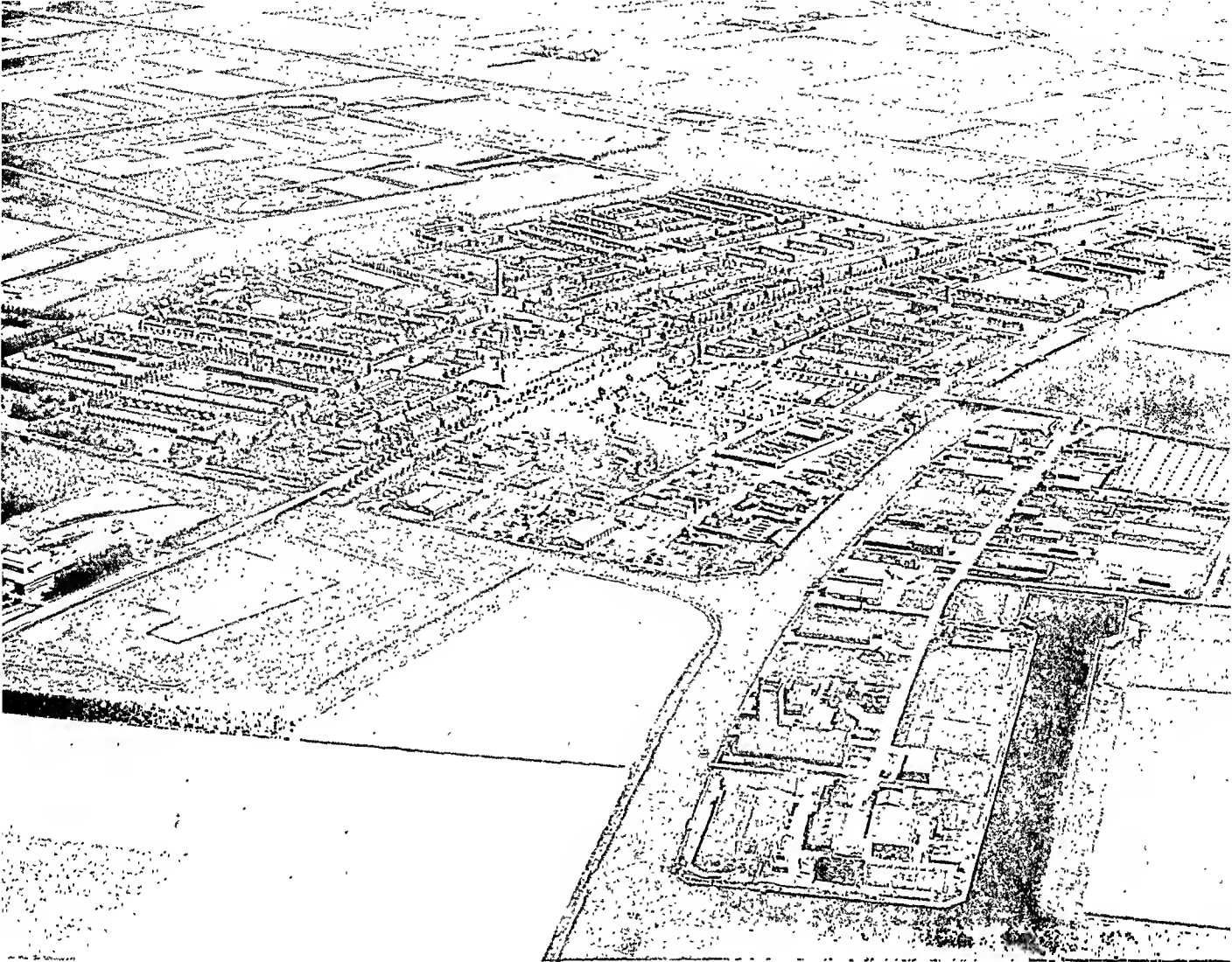
Kempenland, but the surface stands generally somewhat higher above sea level. Much of the surface is covered with heath or with newly planted stands of conifers. Hollows in the sandy surface are floored with a heavier and more productive soil, and around the margin of this region is marine or lacustrine clay. In recent years successful attempts have been made to develop the higher moors for agricultural purposes, and with the use of lime and artificial fertilizers worthwhile progress has been made. This region now produces considerable quantities of rye, oats, barley, and potatoes. Towns are few and small in this sandy eastern region. Most serve only to focus the agricultural activities of the surrounding coun-

try, but some have developed small industries. In the towns of Twente, particularly Enschede (130,000), Lonneker, and Almelo, a cotton industry developed in the nineteenth century whose local basis was the cheap labor and the skill in manipulating wool and flax of the local population. There is no fuel in this eastern region of the Netherlands, except peat or turf, which is cut and burned, and a growing production of petroleum from a field near the German boundary.

In very recent years a natural gas field has been discovered in the northeast of the Netherlands, Groningen and Friesland. Production has increased very rapidly during the past decade, and the Dutch have established refineries to ex-

Figure 17-4. Netherlands: distribution of population and larger cities.





The new town of Emmeloord, in the recently reclaimed Northeast Polder, is expected to grow into a small industrial city which will at the same time serve the needs of the farms scattered regularly over the surrounding fields. (Netherlands Information Service.)

tract by-products from the gas, which is now being used industrially. Reserves are found to be very large, and to extend far out beneath the North Sea.

THE KINGDOM OF THE NETHERLANDS

The state of the United Netherlands came into being as a result of successful revolt against Spain in the late sixteenth century. Hitherto its territory had made up a group of distinct and often hostile units: the county of Holland, the bishopric of Utrecht, the duchy of Guelders, and so on. "The Dutch nation was born, coherent and distinct from other national units. It was born because,

during the second half of the sixteenth century, a state came into existence, within whose territory men lived and strove together, and shared experiences so crowded and so intense that they found themselves overnight where it had taken the people of other nation states centuries to arrive."¹ The Netherlands thus achieved a unity such as Belgium has never known. In the course of the Dutch revolt a large part of the population became Protestant, generally Calvinist. In contrast to the Catholic tradition of Belgium, the Dutch tradition is Protestant.

¹ G. J. Renier, *The Dutch Nation*, London, p. 10, 1944.

Dutch agriculture is on the whole somewhat better equipped than Belgian. Somewhat over half the agricultural land of the Netherlands is under permanent grass and is used mainly for dairy farming. The output of liquid milk and of butter and cheese is considerable, and pigs are widely kept as an adjunct of dairy farming. In Belgium the balance of agricultural practice is tipped in favor of crop farming; some three-fifths of the agricultural land is under the plow, though there has been in recent years a marked trend toward an increase in dairy farming. The rather larger average size of holdings in the Netherlands hides a more acute agrarian problem. Here a large proportion of the land has necessarily to be under grass because it is too damp for cultivation, and a large area of dry, sandy heath is too unproductive to be worth plowing. There is, in consequence, a very great pressure of population on the land. Land values are high, and the cultivators make the most of their holdings by a very heavy use of fertilizers. The standard of rural housing is not always good; rural indebtedness is high and mechanical devices are but little used on some of the farms.

This higher dependence upon agriculture, with the greater pressure of population, leads in the Netherlands, on the one hand, to the reclamation of land, on the other, to the development of industries which can absorb the surplus population. The textile industry of the Twente district, for example, has no conspicuous advantage except the availability of labor in this region of poor agriculture. The manufacture of leather goods, of radios and other electrical equipment, and of pottery requires large supplies of labor. The reclamation of the Zuider Zee was also part of a plan to alleviate rural overpopulation. The Dutch merchant marine and overseas commercial interests also provide an outlet for the population, and the Dutch act as middlemen in the commerce of northwestern Europe.

Both Antwerp and Amsterdam are engaged primarily in handling the commerce of their immediate area, though both are to some extent engaged in the transshipment of goods either

dispatched from or destined for their German hinterlands. But Rotterdam is, first and foremost, the port of the Rhine River system, and its livelihood depends largely upon the activity of the Ruhr industrial region. It exports Ruhr coal, coke, and steel goods, and imports iron ore, timber, and other raw materials. The attempts of the German government in the years between the two great wars to divert much of this Ruhr traffic to the German ports of Emden and Bremen and the attempt of Antwerp to increase its share in the traffic of the Rhine have done little to diminish the trade of Rotterdam, which in the handling of bulk goods is now foremost on the continent of Europe.

The foreign trade of the Netherlands, in its dependence upon the export of foodstuffs and certain specialized manufactures, and upon the import of a wide range of factory products, forms an interesting contrast with that of Belgium and Luxembourg.

TABLE 17-1. Chief Elements in the Netherlands' Foreign Trade, 1962 (In Millions of Guilders)

Item	Imports	Exports
Food	2,355.2	4,007.8
Beverages and tobacco	219.3	197.0
Crude materials, inedible	2,130.3	1,223.6
Mineral fuels	2,496.0	1,957.0
Animal and vegetable oils and fats	155.2	182.0
Chemicals	1,162.6	1,475.9
Manufactured goods	4,052.4	3,036.3
Machinery and transport equipment	5,188.4	3,437.9
Miscellaneous manufactured articles	1,308.4	910.7
Miscellaneous transactions commodities	290.3	175.0
Total	19,358.1	16,596.3

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1963.

THE UNITY OF THE LOW COUNTRIES

In November, 1957, a customs union was established between Belgium and Luxembourg on the one hand and the Netherlands on the other. This was regarded as merely the first step in the restoration of at least the economic unity of the Low Countries. The difficulties in the way of the creation of a customs union were considerable. The abolition of all obstacles to the internal movement of commodities opened the Belgian market to the vegetable produce of the Netherlands, which is produced in general more cheaply than that of Belgium; the Belgian growers therefore continue to enjoy a small degree of protection from their Dutch competitors. Conversely, the small steel industry of the Netherlands is a high-cost industry and in its turn suffered at first from competition with the larger Belgian industry. On the other hand Dutch coal mining is more efficient than Belgian, and Dutch coal is cheaper. The creation of Benelux was necessarily accompanied by much dislocation and by a considerable degree of ill feeling also on the part of those whose interests were threatened. The time is not ripe to regard Benelux as a single unit. It still consists of three states, with three elected parliaments and three governments, among which the possibility of disagreements still cannot be wholly excluded.

The boundary between Belgium and the Netherlands lies to the south of the Scheldt estuary, crosses the river a few miles below the port of Antwerp, and takes a somewhat irregular course across the Kempenland to the Meuse near Maasbracht. To the east of the Meuse the Dutch province of Limburg extends southward to reach, in the latitude of Maastricht, the border of the Ardennes. Thus does the Netherlands interpose a barrier between Belgium and Germany, only 4 to 18 miles in width, but enough to prevent a low-level canal link from being built from Belgium to the Ruhr. The Dutch possession of South Limburg and of the lower Scheldt has constituted a vexing problem in the relations of the two countries. Most recently the Belgians have raised objections to the Delta Plan of the Netherlands

on the assumption—mistaken as it proved—that flood danger would be increased along the lower Scheldt to the injury of Belgium. Further problems have arisen because the Meuse flows from industrial central Belgium into Holland. The Dutch have at various times made improvements in the navigation of this river and along the stretch from Maasbracht up to Maastricht have built a parallel canal, the Juliana Canal, to take vessels for which the river was too narrow and difficult. It thus seemed in the early 1930s that the trade of Liège and of central Belgium might pass northward into the Netherlands and so to the port of Rotterdam. The Belgians' answer was the construction of the Albert Canal from Liège to Antwerp, a broad ship canal which served to open up the coalfield of the Belgian Kempenland and to focus the trade of the whole of eastern Belgium on the port of Antwerp.

At the end of the Second World War the Dutch made certain very small and unimportant territorial demands on Germany along the boundary which runs northward from the Rhine estuary to the German Ems. These were mainly for technical reasons, such as the improvement of drainage and river control and the sinking of new mine shafts. Several of these demands have been allowed, and in all about 27 acres of former German territory were in 1949 incorporated into the Netherlands.

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part four

Central Europe



Introduction to Central Europe

18

Central Europe is that part of Europe which lies mainly to the north of the Alpine system and is bounded on the west by France and the Low Countries and on the east by Russia. Historically it has been dominated by German political power and settled, wholly or in part, by people of German speech. In the west it includes the Rhineland and Switzerland; in the east, Poland, Czechoslovakia, and Austria. It is a transition region between the relatively high living standards of France, the Low Countries, and Switzerland and the conditions of poverty that have long distinguished eastern Poland and Slovakia in the east. It is further a region within which political boundaries have been very unstable. The eastern limits of Germany have advanced and receded on several occasions. Their greatest extension, the period of the Second World War excepted, was before 1914; their smallest, since 1945. No one dares assume that the present limits will last longer than their predecessors, and one of the most important boundaries in the region, that between Germany and Poland, has not been given official recognition by the United States.

This instability has derived in part from the nature of German settlement; in part from the physical conditions, which make west-to-east movement



FIGURE 18-1. The countries of central Europe.

relatively easy; and in part also from the political traditions and ambitions that have been developed within the German ruling classes. German settlement has spread, though increasingly thinly, all the way from the river Elbe in Germany to the Volga in Russia. Colonies of Germans stretched down the Danube to Romania and Bulgaria. This ancient German settlement encouraged earlier in the present century the assertion by the Germans of political control over this area. Austria and parts of Poland and Czechoslovakia were for a short period incorporated into Germany. These eastern outliers of German speech have now in large measure been removed, and their members sent back to Germany. But Poland and Czechoslovakia nevertheless bear deeply the imprint of German civilization, and however nationalistic may be their policies, they cannot wholly remove their debt to Germany. In this sense the region considered in this section of the book may be called the "German realm."

But central Europe is at the same time closely bound up with the west. The industries of the Rhineland use the ports and serve the markets of western Europe. Rotterdam and Antwerp are

the "natural" outlets of western Germany, and the prosperity of the Low Countries is dependent in some degree on that of Germany. There has for many decades been an exchange of raw materials and industrial products between Germany and countries of western Europe, and this interdependence contributed to the formation first of the European Coal and Steel Community and more recently of the European Economic Community. Both have spanned our arbitrary division between western and central Europe and demonstrated how artificial such boundaries are.

On its opposite boundary, central Europe borders eastern. This boundary has always fluctuated, sometimes advancing deep into Russia; sometimes withdrawing into central Europe. Since 1945 it has been in retreat. Few Germans now live within the boundaries of Poland and Czechoslovakia, and altogether some 10 millions of them have found refuge in West Germany.

The eastern parts of central Europe, East Germany, Poland, and Czechoslovakia are in process of being integrated with their eastern neighbors, just as West Germany is with the countries of western Europe. In an economic and

political sense one may argue that there is ceasing to be a central Europe; that it has been partitioned and incorporated partly into western Europe, partly into eastern. But this trend is not irreversible, and some detect, at the time of this writing, a weakening of the ties that hold together the eastern bloc. At the same time the movement toward unity in western Europe is running into economic difficulties (see page 90).

But in a physical sense central Europe remains. It is made up of a series of west-to-east belts of territory. In the north is the Great European Plain, reaching from France to Russia and widening gradually eastward. South of the plain is a belt of hilly country, which stretches from the Ardennes in Belgium and France to Czechoslovakia. South of this again is a belt of varying width separating these hills from the Alpine ranges. This latter region is drained in part by the Rhine, in part by the Danube. The Danube Valley, flowing eastward toward the Black Sea, forms, like the northern plain, a route of eastward movement and expansion. Lastly, the Alps border central Europe on the south.

Germany cuts across all these divisions from the northern plain to the Alps. Poland lies almost

wholly within the northern plain; Czechoslovakia lies mainly within the central belt of hills; Austria occupies the Danube Valley where it narrows between the hills of Czechoslovakia and the Alps, and once defended the approaches to Germany from the southeast; and Switzerland belongs mainly to Alpine central Europe and is largely drained by the Rhine and its tributaries northward to Germany.

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The Regions of Germany

19

The German State today is the product of a complex series of changes spread over 15 centuries. Most of Germany lay outside the limits of the Roman Empire. Part of it was inhabited at that time by Germanic tribes, some of whom broke into the Empire in the fifth century, and some who penetrated deep into Gaul, or France, and extended the limits of German speech roughly to its present boundary. During the centuries which followed, the Rhineland became the cradle of a Germanic state. Its chief cities were Aachen and Cologne (G: Köln), Frankfurt and Mainz. During the Middle Ages Germans moved eastward, settling new lands, building cities, and establishing trade. They spread along the loess belt to Saxony and Silesia. They moved down the Danube Valley, defeated the predecessors of the Hungarians, the Avars, who tried to halt their progress, and established Austria as the Ostmark, or "eastern march." German traders and crusaders moved along the Baltic coast, carving out for themselves estates in what are today Pomerania and Prussia.

The Germany of the Middle Ages was theoretically the realm of the Holy Roman Empire but was never welded, as were France and England, into a unified state. The Emperor was elected by his peers. At a critical period the emperors chose to squander their resources in a vain attempt to conquer

Italy, while Germany fell to pieces, degenerating into a congeries of small, quarreling, and virtually independent states.

German unity was the creation of the nineteenth century. Germany still consisted a century ago of some 50 distinct units, jealous of their privileges and independence, though forward-looking young Germans were learning to sing *Deutschland über Alles*, not a hymn of conquest, but rather an aspiration, a dream of a Germany embracing all the little political units which territorially composed it. The German Empire was created by the diplomacy and power of the Prussian Chancellor Otto von Bismarck and sanctioned by liberal-minded Germans, happy to see the end of the political fragmentation of their country.

The "First" *Reich* had been the medieval empire; the "Second" was the German Empire created by the policy of Bismarck. Its aggressive impulses took it into the war of 1914. It was defeated and by the Treaty of Versailles (1919) lost territory in the west, north, and east: in the west, small areas to Belgium; Alsace and northern Lorraine to France, and the Saar territory which was placed under the League of Nations and its coal mines administered by France; in the north, the territory of North Schleswig, which went to Denmark; and in the east a much more extensive area which went to the making of the new Poland.

Beginning in 1938 with the seizure of Austria, Germany began a new phase of aggression. This was excused in some quarters as a legitimate desire to incorporate into the Reich, the "Third" or Hitler's Reich, all areas of German speech and sympathy. In September, 1938, the Sudetenland of Czechoslovakia, predominantly German in speech, was annexed after the Munich crisis. When in March, 1939, the Czech lands of Bohemia and Moravia were also annexed, this apology clearly could hold no longer, and the German invasion of Poland in September, 1939, opened the Second World War.

Germany suffered a defeat more crushing than any she had known before. Her eastern provinces, which had been German since the Middle Ages, were placed under Polish administration, and the

rest of Germany was divided into zones and occupied by four of the victorious powers. Berlin, which since 1871 had been the German capital and was expected again to play this role in a reunited Germany, was also divided into four sectors and administered by the four allied powers.

The study of a land so partitioned presents difficulties. During the past century Germany achieved political and economic unity at approximately the same time. The development of railways and canals, the establishment of factories, and the supply of minerals, fuel, and foodstuffs came in the later years of the nineteenth century to be organized on a national basis. Agricultural and industrial areas were integrated, each furnishing part of the requirements of the other. This pattern of internal trade was rudely shattered after 1945. Pomerania and Prussia no longer sent foodstuffs to Saxony and Brandenburg; Berlin was cut off from its supplies of coal. In a hundred ways, the economy of the old Germany was disrupted by the inability to buy and exchange freely across the new zonal and national frontiers. Furthermore, there was a considerable internal movement of population, which further disorganized production.

In the following pages the regions of Germany lying west of the rivers Oder and Neisse are discussed without direct reference to the division into West and East Germany. In the next chapter the consequences of this division are examined, and the diverse policies pursued in the two halves, their population and labor problems, their contrasted levels of prosperity, and above all their integration respectively into the western and eastern blocs, are discussed.

Regions of Germany

The Germany of today is made up of four belts of territory, already referred to in the introduction to this section of the book. In the north is part of the plain of northern Europe; south of this is a belt of hilly country, which stretches from France to Czechoslovakia. Southward again is a rolling

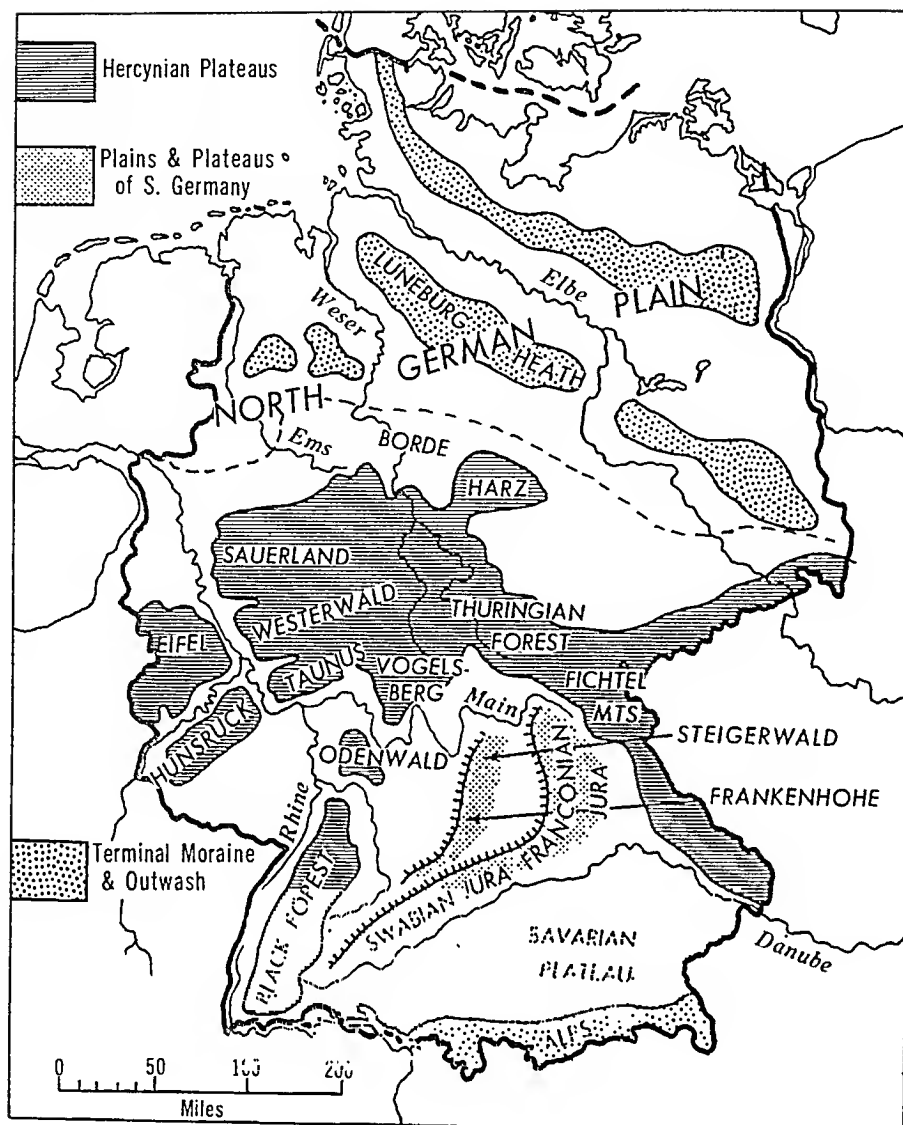


FIGURE 19-1. Physical regions of Germany: the pecked line indicates the southern limit of the Quaternary glaciation.

plain or plateau, rising in places to hilly ridges and making up most of south Germany. Lastly, a small area of the Alps lies within the limits of Germany in the south. Very broadly, it may be said that northern Germany is low-lying and nearly flat, and that southern Germany is made up of hills and plateaus. The account which follows is based on this fourfold division of Germany. Some unity is given to all these divisions by the course of the Rhine, which rises in the Alps of Switzerland, flows northward through southern Germany, and crosses the central hills by the famous Rhine

Gorge before widening into the northern plain. The Rhineland could be regarded as a distinct unit within Germany, but it is here broken for convenience into sections, one of which, the Alpine, is considered in the chapter on Switzerland. The Weser and the Elbe, other rivers of the northern plain, also rise in the hills of central Germany. The plains and plateaus of southern Germany are drained partly by the Rhine and its tributaries, the Main and Neckar, partly by the Danube, which flows from Germany eastward through Austria toward the Black Sea.

THE NORTH GERMAN PLAIN

The North German Plain broadens eastward from the borders of the Netherlands until it passes into Russia. Toward the west it is less than 100 miles wide from north to south, but in the longitude of the river Rhine it widens somewhat as it sends fingers of lower land into the hilly region which lies to the south, and at the longitude of the Oder and Neisse it is 200 miles across. Most of the plain is less than 300 feet above sea level, yet it is far from level or uniform. Most of it was covered by the ice sheets during the last glaciation, and these have laid down a deep covering or drift. As we see it now, the northern plain is the creation of the Ice Age. Most of the terrain is of glacial origin, moraine, outwash, or boulder clay, and the present courses of the rivers are in large measure a product of glacial interference with their drainage.

The Glaciated Plain. The glacial deposits represent several distinct advances and retreats of the ice, but their collective result was to push the Rhine mouth westward to its present position and to distribute moraine almost to the margin of the hills of central Germany. Water escaping from the ice spread gravel and sand over the plain, and halts or pauses in the retreat of the ice led to the formation of a series of subparallel morainic ridges which constitute the strongest relief features of the northern plain. The sandy moraines of northern Germany make a complex pattern. They loop through the Danish peninsula and islands, deploy over north Germany, and stretch away eastward into Poland and Russia. They create a maze of small hills, separated by marshy, lake-studded depressions. During a late phase in the history of the glaciation, the rivers, which emerged from the margin of the ice, were forced to flow northwestward, parallel to the edge of the ice itself, to the North Sea. As the ice retreated and again halted, a fresh series of valleys was created to carry away the meltwater. These river beds, or *Urstromtäler*, remain as conspicuous features of the landscape, and if they do not all contain rivers today, they at least provide easy routes for the

construction of canals. The present-day rivers each make use of a section of one of these valleys before taking a transverse course across the belt of end moraine and occupying the longitudinal valley of the next. This tends to give a somewhat rectilinear pattern to the drainage of the plain (Fig. 19-2). The drainage system that thus developed had two features of great significance. The rivers were oriented in a southeast to northwest direction. Silesia and Saxony were thus put in direct connection by river with the North Sea rather than with the Baltic. Bremen (575,000)¹ and Hamburg (1,847,000), lying near the mouths of the Weser and Elbe, respectively, became the great commercial ports of Germany, rather than Lübeck (237,000), Rostock (166,000), and Stettin, now the Polish port of Szczecin, on the Baltic coast. A second consequence lay in the provision of abandoned river valleys, linking one major river system with another and forming potential routes for the construction of canals.

The development of the North German Plain has depended mainly upon the nature of the glacial deposits. Broadly speaking, there are three distinct types of regions: (1) plain covered with boulder clay and terminal moraine and dotted with lakes and often forested, (2) infertile areas of sand and gravel, and (3) areas of alluvial deposits lying along the rivers and around the coast. To these should be added the loess region, which lay outside the limits of the later extensions of the ice sheet, but was covered with dustlike deposits of high natural fertility, probably blown outward by winds from the clay-covered plain to the north. The only city of large size in the western part of the plain is Oldenburg (126,000), a market center west of Bremen, but Münster (188,000) and Osnabrück (140,000), both important industrial cities, lie near the southern margin of the glaciated plain.

The glaciated plain of Holstein and Mecklenburg is contained within the arc of the great

¹ The population in 1962 is given for cities of more than 100,000. All cities of this size are named in the text.

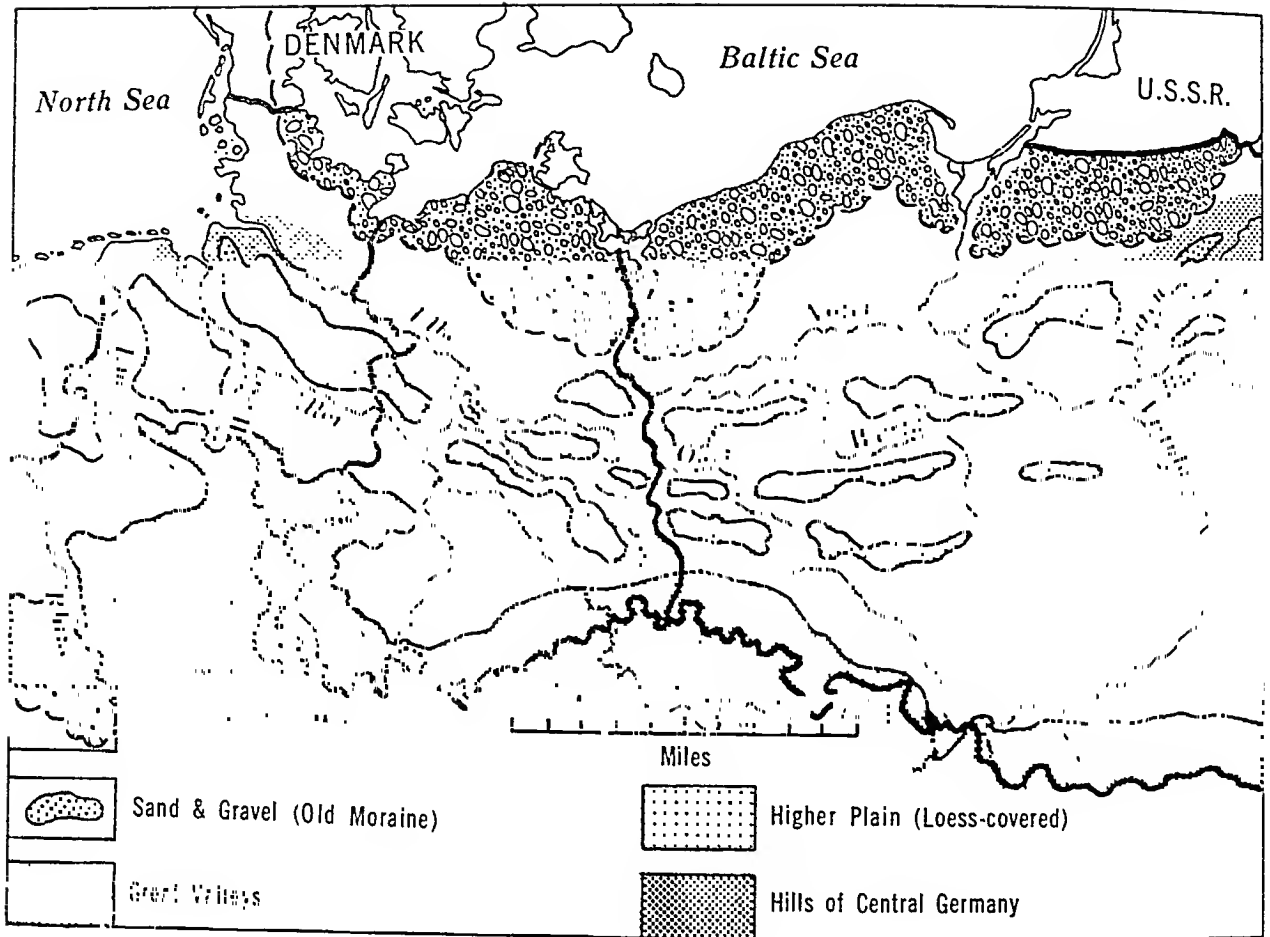


FIGURE 19-2. Glacial landforms of the North German Plain.



The heathlands of north Germany have developed in infertile glacial sands and gravels. Though much of these areas is now forested, there remain some areas of rough grazing. This scene is on the Luneburg Heath. (Lufthansa Archiv.)

Baltic terminal moraine, which extends from Denmark to Russia. The moraines themselves are conspicuous features of the landscape, forming belts of hummocky country, which in the Baltic Heights, in what is now northern Poland, reach to more than 1,000 feet above sea level. The plain, enclosed on the south by these moraines, is covered by an uneven spread of boulder clay. The drainage pattern is indefinite. Many of the hollows have filled with water or peat. The lakes themselves form long chains of narrow, irregularly shaped, and sometimes interconnected patches of water. The land is damp and ill drained. The soils vary greatly in quality. Some are heavy; others embody outwash sands and masses of rock worn from the hills and valleys of Scandinavia. Much of the higher ground is made up of sandy deposits, and its light, infertile soils are today covered with conifers or with heath. Few parts are fit for crop production, though the heavier lands make good meadows for dairy cattle.

The region as a whole is sparsely populated, and there are few towns. The area was formerly distinguished by its large estates and its poor peasantry, only a few generations away from serfdom. Villages are small, and isolated or scattered settlements are common. The poor material culture of the region reflects its natural poverty and the difficulty of agricultural development.

The waters escaping from the ice sheets spread large sheets of sand and gravel over the area outside the moraines. These have in turn been cut up by rivers into numerous patches of sand or gravel, known as *Geest*, each surrounded by the marshy plain of a former river valley or by the flood plain of a present stream. The most significant of these geest areas is the Lüneburg Heath, lying between the Weser and the Elbe Rivers, but patches of similar sand and gravel stretch westward into the Netherlands and southeastward beyond the Elbe in the Fläming and Nieder Lausitz heathlands.

In low-lying areas the sandy deposits become waterlogged. Peat forms in the hollows, and low bog, or moor, is produced. Moor is very extensive in northwestern Germany. In parts it has been drained and reclaimed for agriculture, and the

black peaty soil is often very fertile. The more elevated areas, such as the Lüneburg Heath, are covered with a low growth of heath plants which can stand the dry and acid soil. The soil is thin and leached. Attempts have been made with an intensive use of fertilizers to break in some of the heath for cultivation. Some success has attended these efforts, but the most profitable form of land use has been afforestation. Very large areas have been planted with conifers. Population is very sparse on the heath, and the people live mostly, as is so often the case in areas of low agricultural value, in small and scattered settlements.

The ancient and present-day river valleys form a pattern which encloses many of the small areas of geest. The line of the river Weser is continued in the valley of the upper Elbe, while the direction of the lower Elbe is continued southeastward by the Havel and Spree, on which Berlin lies, and then by the middle Oder into southern Poland. These valleys are filled with alluvium. Some are marshy; all provide meadowland. They are more richly productive and more densely peopled than either of the regions of the northern plain already considered, the clay plain and the geest. At the mouths of the rivers are the leading commercial ports of Germany, Hamburg, Bremen, and Emden, and along their courses are numerous small market towns.

Berlin lies in one of the ancient river valleys. Its nucleus was an island in the river Spree, where was established in the Middle Ages one of Germany's eastern frontier posts. Near here the Electors of Brandenburg established their residence, and, with their rise to preeminence in Germany, the city of their choice grew in size and importance, if not also in beauty, and became an industrial city of very great importance. At this point the geest approaches close to the river on both north and south. There were thus a dry approach to the river (compare the sites of London and Paris) and a dry terrain over which the city expanded, while the rivers provided both routeways and cheap transportation.

The population of the whole city of Berlin in 1963 is given in Table 19-1. To the west is Potsdam (115,000), former seat of the Hohen-

zollern kings of Prussia, and now a center of light industries.

TABLE 19-1

Western sectors of Berlin	2,186,200
Eastern sector of Berlin	1,065,296
Total	3,251,496

The Coast. The Danish peninsula divides the north German coast into two contrasting parts. To the west is a low, flat coast, where recent accretion and reclamation have extended the land at the expense of the sea. To the east the coast has been submerged in recent geological times and the valleys drowned by the rise in sea level. West of Denmark, a low, flat coast is fringed by equally low and inconspicuous islands. Between these Frisian Islands and the coast are stretches of shallow water, known as *Watten*, difficult to navigate but capable of reclamation as agricultural land, similar to the polders of the Netherlands. In fact, new land is building forward from the coast all the way from the Dutch frontier to the Danish, broken only by the estuaries of the north German rivers, the Ems, Weser, and Elbe.

The coastline of the Baltic Sea is more irregular than that of the North Sea. The east coast of Schleswig is deeply indented by drowned valleys, on one of which lies the city of Flensburg, and farther east are many irregularly shaped islands. The irregularities of the coastal forms, due to the postglacial submergence of this coast, have in part been smoothed away by the longshore drifting of material derived from the erosion of the moraines. Long, narrow spits, or *Nehrungen*, have been drawn across the entrances to bays and estuaries, and on them high sand dunes have been piled by the wind. Lakes have been formed along the coast. Islands have been joined together, and in this way the estuary of the Oder has been almost cut off from the sea.

The ports of this coast were once of great importance in the trade of Germany. From Lübeck the ships of the Hanseatic League of the Middle Ages traded with the Baltic countries and

Russia. In modern times trade with remote parts of the world has become more important than the Baltic trade, and with this change the North Sea ports have grown in importance as those of the Baltic Sea have declined. Many of the smaller ports of this coast have been closed by silting, but a few, including Lübeck and Rostock, now being developed as the chief commercial port of East Germany, retain some of their commercial importance. Kiel (271,000), at the eastern end of the canal that has been cut across the base of the Danish peninsula, has developed shipbuilding industries.

The most important ports have in recent years been those lying to the west of the Danish peninsula. The river valleys converge on them from the southeast, and extend their hinterlands in this direction. The largest are Hamburg and Bremen, lying at the limit of ocean navigation on, respectively, the Elbe and the Weser. In both, the docks extend down the river from the ancient city center, and each has an outport, Cuxhaven and Bremerhaven, respectively, nearer the ocean. Both handle bulk as well as specialized cargoes, and Bremen in particular handles imports of coffee and raw cotton.

At the mouth of the Ems is the smaller port of Emden, much of whose traffic is made up of bulk cargoes, such as coal and iron ore, on their way from or to the Ruhr industrial area. Between Emden and Bremen is Wilhelmshaven, once the foremost German naval base, its docks and industrial assets now converted to peaceful purposes.

The Loess Belt. Along the southern margin of the North German Plain is the Börde, a belt of country of irregular width and gentle relief, covered with an irregular, uneven deposit of fine, dustlike loess, swept outward by the winds which blew from the glaciated plain to the north. It gives a porous and dry soil, and it is fertile and supports an intensive agriculture. From early historical times it was at most but slightly wooded. Movement along it was easy, and clearing the land for cultivation offered few difficulties in former ages. It is one of the oldest regions of agriculture in Germany, as well as being one of the richest. It



By contrast, the loess-covered Borde region is fertile and intensively cultivated. It is characterized by open fields and nucleated villages. This scene is south of Hanover. (N. J. G. Pounds.)

is a region of large, compact villages, most of them still surrounded by their open fields with the intermixed strips of the farmers. The cities of this region are mostly medieval in origin, and many retain the monuments—churches, town halls, towers, and walls—from their illustrious past.

The loess-covered plain stretches southward in the neighborhood of the river Rhine as a sort of “bay” between hills which are part of the hilly region of central Germany. The Rhine has laid down beds of gravel, which now form terraces over which the modern towns have been enabled to spread. Beneath the loess, gravel, and other deposits are coal measures. The loess belt has been since early times a routeway from west to east. Trading cities grew up here at an early date, and some, especially those at the crossings of rivers, attained great size and importance. Most important of these was Cologne (827,000), a city of Roman origin lying on the west bank of the Rhine. Cologne grew during the Middle Ages to

be one of the greatest commercial cities of western Europe. It lay where the navigable Rhine crossed the west-to-east loess belt. Its location at a sort of commercial crossroads has enabled the city to continue to grow in modern times and to become the center of a very varied range of industries, which include the processing of food and the manufacture of steel. The city was one of great beauty and historical interest. Though very heavily damaged during the Second World War, some of its ancient buildings have survived, the city is rebuilt and is again an industrial and commercial center.

West of the Rhine is the small coalfield and industrial center of Aachen (*F*: Aix-la-Chapelle, 174,000), an ancient home of the iron and brass industries. Aachen was a favorite residence and became the burial place of the Emperor Charlemagne. The city has many remains from its brilliant past, though its location within sight of the boundary has detracted from its political importance in modern times. The Aachen coalfield

produced only 8,356,000 tons of coal in 1961 and is dwarfed by its neighbor, the Ruhr coalfield, east of the Rhine.

The Ruhr. The little river Ruhr drains part of the highlands of central Germany and joins the Rhine near Duisburg (503,000). North of the river Ruhr lies the largest coalfield in western Europe. The Ruhr industrial area has grown up on the basis of this vast resource in coal and forms a distinct region, only 40 miles from west to east and a great deal less from north to south, containing a population of some 7 million persons. Its nucleus over a century ago was in the Ruhr Valley, where the coal seams came to the surface. Since that time mining has extended farther northward. The coal seams increase in depth in this direction, and even deeper and more elaborate shafts have become necessary. At present exploratory work has proceeded as far north as the latitude of Münster, and the most northerly worked coal mines are in the Lippe Valley. The older coalfield along the Ruhr is largely abandoned. Iron ore was obtained at first locally from the bogs and marshes of Westphalia (*G.* Westfalen) and from bedded deposits contained within the coal measures. These sources have long since been abandoned, and the blast-furnace industry of the Ruhr is now supplied from Sweden, Lorraine, Spain, and other areas. The basic industries of the Ruhr are coal mining, the manufacture of coke, iron smelting, and steelmaking. To these have been added various branches of the engineering, steel construction, and chemical industries. Recently the automobile industry has been introduced. The Ruhr's coal output is about 116 million tons a year, and the coke output almost 40 million tons. In 1961, the Ruhr produced about 28 million tons of steel; the highest production in the years before the Second World War was some 16 million tons. The smelting operations within the Ruhr have tended to move toward the river Rhine or toward the canals that lower the cost of transporting ore to the furnaces. These are found close to the Rhine in the west or near Dortmund (649,000) in the east, for the convenience of water transporta-

tion of the ore. The manufacture of steel is more widely scattered through the Ruhr area.

The manufactures of the Ruhr now include chemicals which may be regarded as a by-product of the coking industry. The chief centers of the metallurgical and chemical industries in the Ruhr are Essen (730,000), seat of the great Krupp concern, Bochum (361,000), Dortmund (649,000), Oberhausen (260,000), Gelsenkirchen (382,000), Mülheim (188,000), and Duisburg (503,000), which spans the mouth of the river Ruhr. More important for coal mining than for ironworking and steel working are Recklinghausen (130,000), Herne (112,000), Bottrop (112,000), and Wanne-Eickel (108,000). To the north the towns are smaller as well as newer, developing as the coalfield expanded northward.

The Ruhr has the advantage not only of a highly developed railway network but also of a system of canals and of the best navigable waterway in western Europe, the Rhine. At the end of the nineteenth century the canal from Dortmund to the river Ems was dug in order to put the Ruhr into closer communication with the North Sea Ports. This canal has since been linked with the Rhine by the Rhine-Herne Canal and also by the Lippe Canal.

This region of metallurgical and chemical industries is merely the heart of a much larger region, which embraces the plain of Westphalia, the highlands of the Westerwald, and the Rhine Valley. The industrial development of this peripheral region is in many respects older than that of the Ruhr region itself. Linen, once the chief industrial product of Westfalen, is still made in Bielefeld (174,000). To the south the ancient silk and woolen industry of Wuppertal (422,000) has continued, with the addition of cotton manufacture. Krefeld (216,000) and Aachen, west of the Rhine, are also ancient centers of the textile industry, and in Mönchen-Gladbach (153,000) cotton, woolen, and silk industries continue to be of great importance.

Düsseldorf (703,000) lies on the Rhine a few miles to the south of the Ruhr area. From being the capital of one of the petty German principal-

ties, it grew to be an industrial center without losing its character of a cultural and artistic center. It now acts as business and administrative headquarters for many of the Ruhr industries, and itself has important metallurgical and engineering industries. On the Rhine to the south is the vast chemical complex of Leverkusen.

The ancient centers of the metallurgical industries had been in the hilly country of the Sauerland, Westerwald, and Siegerland, where small forges had produced swords, armor, nails, wire, and cutlery. The fabrication of steel brought in from the Ruhr is still of importance. Remscheid (129,000), Solingen (172,000), Hagen (199,000), and Altena, as well as a number of smaller places, remain important for wire drawing, forging, and rolling as well as for the manufacture of finished-steel goods, especially cutlery and high-quality steel.

The great importance before the Second World War of the Ruhr as a producer of heavy steel goods led France, Great Britain, and other countries to participate in schemes aimed at imposing some sort of international control on the region. During 1923 it was occupied by French troops, and after the Second World War an international authority was established to control Germany's use of the resources of this region, and remained active until 1952. On the other hand, the Ruhr is part of the economy of western Europe. Most western European countries, except Great Britain, rely in greater or lesser measure on the coking coal of the Ruhr. Other countries, including Switzerland and the Netherlands, obtain crude steel and semifinished steel goods from the Ruhr for their finishing industries. The creation of the European Coal and Steel Community in 1952 was in part a recognition of this interdependence, and the canalization of the Mosel (*Fr*: Moselle) completed in 1964, links yet more closely the industries of the Ruhr and eastern France.

Saxony. East of the Rhine a long, narrow finger of hill country, known as the Teutoburger Wald, stretches northwestward into the plain. In some degree it presents a barrier to movement along

the Börde and has forced railroads to take a course around its northern extremity, where Osnabrück has become a route center and a city of considerable commercial importance. West of this ridge is Münster, focal point of the Westphalia Plain, market center, and now, with the development of the nearby Ruhr coalfield, a city of growing industrial importance.

East of the Teutoburger Wald the Börde continues through Hanover (*G*: Hannover), a rich area of rolling, loess-covered farmland, with cities of such grace and beauty as Hildesheim, Hanover (573,000), Brunswick (*G*: Braunschweig), (243,000), and Goslar. Most of these suffered severely during the Second World War, and Hildesheim was almost obliterated but has since been rebuilt. Several of these cities, which owed their growth to the richness of the region in which they lay and to the trade which passed along the Börde, have attracted modern industries. Hanover has automobile and engineering industries, and the local low-grade iron ores from near Brunswick are not only smelted with fuel brought from the Ruhr but contribute to the ore supply of the latter region. Here Salzgitter (113,000) has become an important center of iron smelting and steelmaking, using the local ores and importing Ruhr coal by way of the Mittelland Canal. To the northeast of Brunswick is Wolfsburg, the boom town which manufactures the Volkswagen car.

Saxony (*G*: Sachsen), lying to the east of the zonal boundary, has the rich loess soil and is intensively cultivated. Along the margin of the Bohemian or Czech Massif are small, scattered coalfields, the most important near Zwickau and Karl-Marx-Stadt. Farther to the north, between Halle (278,000) and Magdeburg (266,000), are extensive deposits of lignite. This fuel, which is obtained from vast strip mines, is of too low a quality to be worth transporting far but is used near the mines for power generation and as the basis of important chemical industries. Common salt and potash are also mined in Saxony and contribute yet further to the important chemical industries of Merseburg and other towns of

Saxony. Saxony is an important industrial region. It lacks the immense resources in coking coal which make the Ruhr area important but has adequate fuel resources for a varied industrial development. Leipzig (587,000) and Dresden (495,000) are ancient cities of this region that have attracted modern industries. Karl-Marx-Stadt (Chemnitz, 287,000), Zwickau (129,000), and Halle are now more specialized centers of the textile and chemical industries. This region is drained by the Elbe and its tributaries, the Saale and the Mulde, and its chief commercial outlet was formerly northwestward through Hamburg.

The northern plain is thus a region of gentle though varied topography. Despite the existence of limited areas of good soil, the region as a whole is one of low agricultural value. Large areas remain uncultivated, and it is doubtful whether the area under cultivation could be extended with any profit. The prosperity of the northern plain derives more from its mineral than from its agricultural wealth. The construction of means of communication, both railroads and canals, has been relatively easy, thus contributing to the development of industries. The most important single means of communication, however, is the river Rhine, along which a large part of the heavy merchandise passes between the Ruhr and the ocean ports of Rotterdam, Amsterdam, and Antwerp. The northern plain, particularly its southern edge, has become the most industrialized region of Germany.

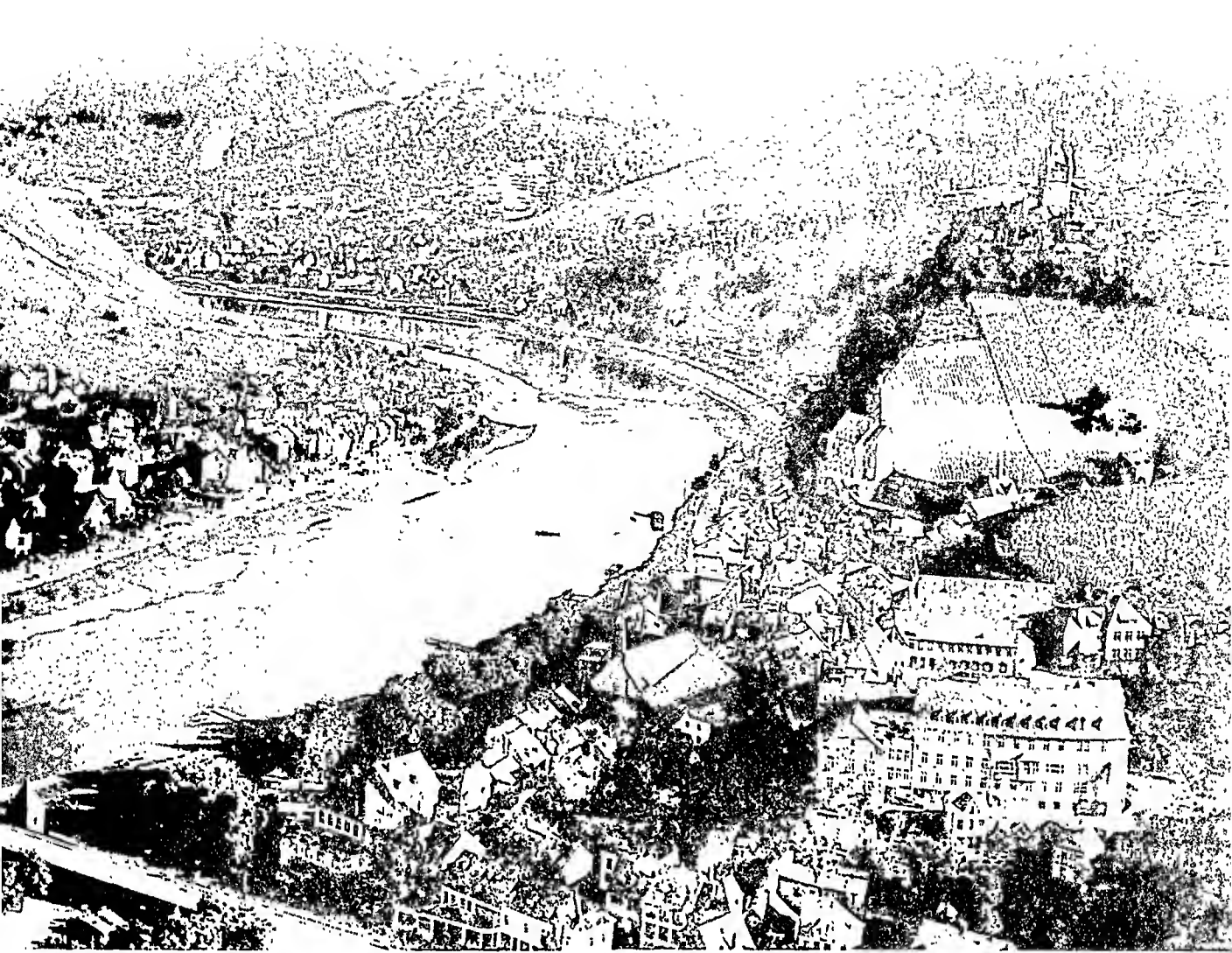
HIGHLANDS OF CENTRAL GERMANY

Reference has frequently been made to the belt of hilly country that stretches from west to east across the center of Germany. In the west it continues through Belgium and into France under the name of the Ardennes, and in the east it is continued into eastern Czechoslovakia. The region is made up of many eroded hill masses, separated from one another by narrow belts of lowland. These hills rarely rise to sharp or rugged summits. Their upper surfaces are usually smooth or undulating, sometimes ill drained, and often thickly forested. The rivers that rise in or flow

through this region occupy deep, narrow valleys, which furnish routes through the hills. In the west the valleys of the Rhine and Mosel, farther east the Weser and Elbe, provide such through routes.

Rhineland Highlands. Toward the west this region is commonly known as the Rhenish, or Rhineland, Highlands. A few miles below the city of Mainz, the river Rhine enters the most familiar and the most spectacular part of its course. Between Bingen and Bonn, a distance of about 70 miles, it crosses the Rhineland Plateau in a deep gorge, around whose castled cliffs and terraced vineyards has gathered a host of legends of history and romance. The plateau itself is built of hard slates. It has a flat or undulating surface, broken by the deep valleys of the short streams that flow down to the Rhine or Mosel. The steep slopes are mainly forested, but the plateau surface is generally cleared for cultivation. The climate is too harsh and the soil is often too poor for crop farming to be really important. Iron ore was once mined in many parts of this region and was smelted with charcoal made in the forests. This industry has now disappeared over most of the region, though a small iron-smelting and steel-making industry survives near Siegen, the ancient center of ironworking in this region.

These highlands are divided by the river Rhine and its two tributaries, the Mosel and the Lahn, which both join the main river at or near Coblenz (or Koblenz, 101,000) into four quadrants. To the northwest is the Eifel, a continuation of the Ardennes of Belgium, noteworthy for its recent volcanic activity, which has left craters, many containing lakes, and vast deposits of volcanic ash (*Bims*) which are quarried near Andernach for making cement. To the southwest is the Hunsrück, and to the southeast, the Taunus. The northeastern is the most dissected of these four areas. Its many small, swift streams once provided water power. Its narrow valleys formerly resounded with the beat of the water-driven forge hammers, which worked up the iron and steel made farther south in the Siegerland, the region around Siegen. These works are now silent, but many towns within these hills have inherited this



The characteristic landscape in the hilly region of central Germany is one of undulating plateaus, with steep, narrow valleys. Here the Mosel (Moselle) is seen cutting across the Hercynian plateau between the Eifel and the Hunsrück. The small town seen here is Kochem. (Lufthansa Archiv.)

ancient industry. Remscheid, Solingen, and Hagen are today important centers of the steel and metallurgical industries, and Wuppertal has become the seat of the textile industry, an inheritance from a period when the spinning machines and looms were worked with water power.

Hesse and Thuringia. Eastward from the Rhineland Highlands there stretches an area of very beautiful hill country, softer in its outlines and generally of a higher agricultural value than the Rhineland. The broader valley floors are well cultivated; they

support large villages and are traversed by important routes. There are small and ancient cities, such as Hameln, the university cities of Göttingen and Marburg, many small industrial cities like Wetzlar, Giessen, and Fulda, and one industrial city, Kassel (212,000), of great importance. In Thuringia (G: Thüringen) the area of low-lying agricultural land is greater and the prosperity of the area more marked. The loess, which gives the Börde its richness, is deposited over the Thuringian Plain, and here a landscape somewhat like that of the Börde has been developed. There are many

small medieval towns. In some of these, such as Erfurt (188,000), the ancient craft industries have ripened into modern manufactures. Jena has thus become the seat of the Zeiss instrument works; Gera (103,000) has textile and engineering industries, and Weimar, formerly a center of German thought and letters, the home of Goethe and other great figures in German literature, was for a time the seat of the German Parliament.

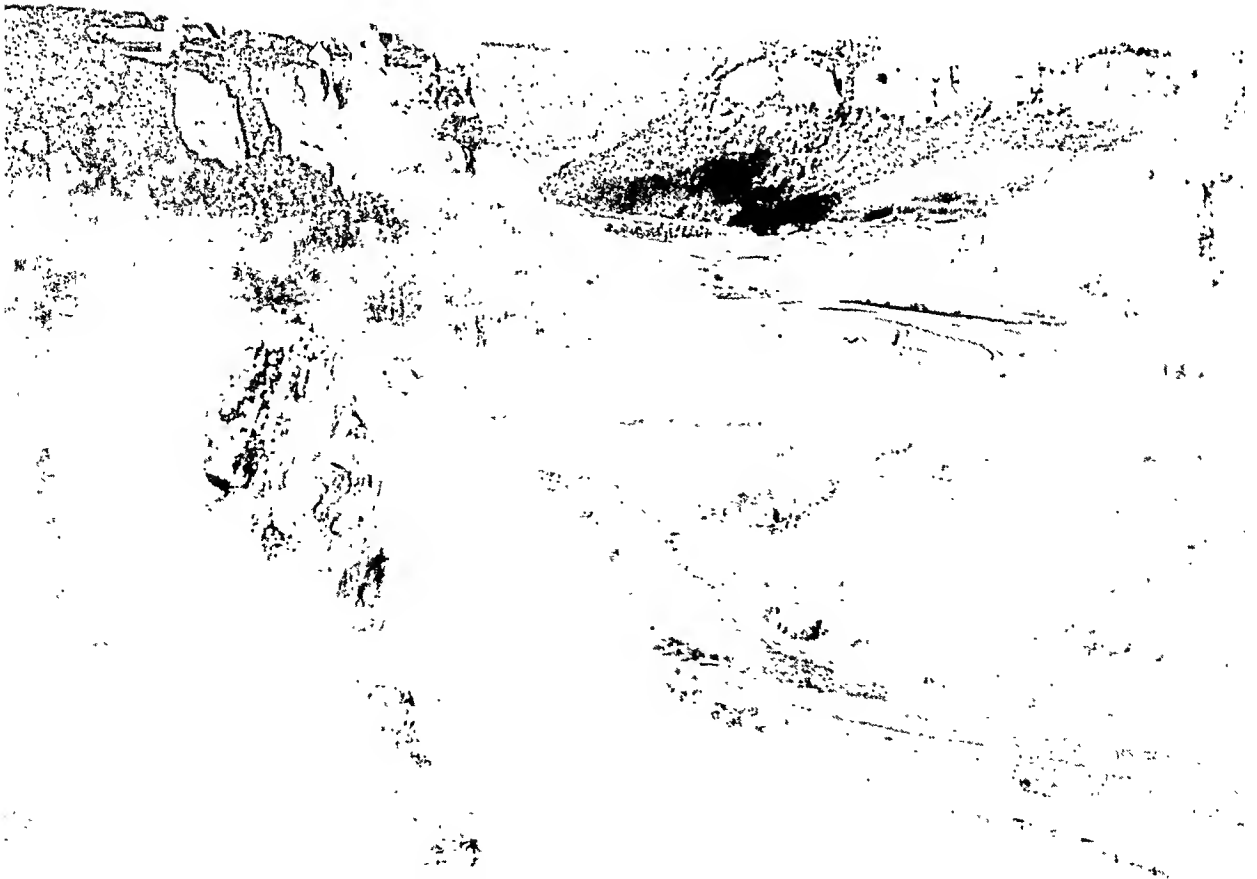
Thuringia is almost surrounded by hills, some of which resemble the Rhenish Highlands in their composition and relief. On the north is the sharp-sided, flat-topped massif of the Harz Mountains, which in turn looks north over the Börde and the North German Plain. Its ancient rocks were richly mineralized, and lead, copper, and zinc have been

mined here since the Middle Ages. Other similar massifs of old, hard rock, the Thüringerwald, the Fichtel Gebirge, and the Erz Gebirge, through which runs the boundary between East Germany and Czechoslovakia, lie to the south of Thuringia. In general they have a poor soil and are sparsely populated. Much of their area is forested. With the decline and gradual extinction of the mining and metalworking industries, these areas are left with few economic assets.

SOUTHERN GERMANY

South of the highland belt that has just been described is the plateau of south Germany, a region of undulating relief somewhat resembling eastern

The Danube rises in the Black Forest, and while still a small river, cuts across the limestone plateau of the Swabian Jura. This photograph shows the gorge which the river has cut near Donaueschingen. (*Lufthansa Archiv.*)



France. In the west is the Rhine Plain, with hills both to the west and to the east. Rising steeply from the eastern edge of the plain is the Black Forest, east of which are the Main and Neckar Valleys, the limestone uplands of southern Germany, and the Danube Valley. Rainfall is less than in the hills and plains of the north, and the climate is milder. Summers are hot, and in places the grapevine grows well.

Rhine Valley. The Rhine Plain resembles that of Alsace, which it faces across the river Rhine. Like Alsace, it is a region of light soil, of high agricultural fertility, and of early human settlement. The Rhine is here a broad, slow-flowing stream. A deep channel has been cut through its meanders, and aided by dams and locks, the river is navigable up to the Swiss port of Basel. High enough above the level of the river to be free of the danger of floods are terraces, covered with the light loess soil, and broader and more continuous here on the German side of the river than in Alsace. A line of towns has grown up along the river: Speyer, Mannheim (319,000) and Ludwigshafen (170,000), which face one another across the river, and Worms and Mainz (138,000). Another line of towns lies along the edge of the hills which border the plain on the east. This line includes the cities of Frankfurt (691,000), once the greatest trading city of the upper Rhineland and now a center of engineering, chemical, and other industries, Freiburg, Wiesbaden (257,000) nestling against the southern face of the Taunus, Karlsruhe (248,000), a planned city of the eighteenth century, and Darmstadt (139,000) at the northern end of the Odenwald, on the edge of the plain formed where the Main joins the Rhine.

West of the Rhine and north of the French province of Alsace are the hills of the Palatinate (or Pfalz). In part they are built of infertile sandstones, in part of volcanic rocks. Most of the higher ground is forested, and cultivation is limited to the valleys. A depression extends through this area from the Rhine toward the Saar Valley and France, and in this gap lies the city of Kaiserslautern. It is today much used as a route from the Paris Basin eastward.

Saarland. The Saarland has had a history somewhat distinct from that of the rest of Germany and has for long periods been closely associated with France, both politically and economically (page 202). The coalfield has given rise to an important industrial development, and ironworks and steelworks were established here early in the nineteenth century. In some degree the Saar area is complementary to the French iron-ore-producing area of Lorraine. The French desired its coal resources and, after the First World War, succeeded in detaching it from Germany and giving it a separate administration under the authority of the League of Nations, while the French themselves operated the coal mines. They attempted a similar policy after the Second World War, and until the end of 1956 the Saarland was economically a part of France. On January 1, 1957, it was restored to Germany as part of the Franco-German rapprochement. About 16 million tons of coal a year are mined in the Saar Valley, and the steel industry produced in 1961 about 4 million ingot tons of steel. Saarbrücken (129,801) is the chief industrial center, but there are also important metallurgical establishments in Neunkirchen, Völklingen, and Dillingen.

Main, Neckar, and Danube. Just as the Rhine Plain of Germany resembles the plain of Alsace, so the Black Forest is closely similar to the Vosges (page 202). Its western face is steep, its summits are rounded, and it drops gently eastward to the plateau of south Germany, just as the Vosges sink westward to Lorraine. The Black Forest is thickly wooded and is a region of great natural beauty and a popular resort area. North of the Black Forest are the lower hills of the Spessart and Odenwald. Heidelberg (126,000), a university city of unspoiled charm, has grown up on the river Neckar where it has cut a narrow cleft through these hills to reach the Rhine.

East of these hills is the plain of the rivers Main and Neckar. A sequence of beds of limestone, sandstone, and clay, dipping to the east or southeast, has produced a rolling country of moderate relief. Small towns, many of them, like Rothenburg and Würzburg (119,000), places of

great beauty, and large and compact villages are dotted about this area. The sandstone forms ridges that are generally infertile and are often forested. In some places they give rise to steep, westward-facing scarps; in others they are worn back, so that the sandstone scarcely shows up as a relief feature at all. Limestone and clay have given rise to lower and more productive land. Largest of the many cities of this area is Nuremberg (G: Nürnberg, 464,000), an ancient center of German arts and crafts, situated on the Regnitz, a tributary of the Main. Around it are a number of small industrial towns, such as Fürth and Erlangen. The city of Stuttgart (639,000) lies on the Neckar in an area of rich lowland. Like Nuremberg, it is an ancient city that has now become an important industrial center with, in particular, automobile and other branches of the engineering industry.

The Swabian and Franconian Jura, which lies to the east of the Main and Neckar Valleys, is a high plateau of limestone, resembling closely the limestone hills of eastern France. It presents a steep edge to the west, where it rises to heights of well over 2,000 feet above sea level. The scarp is much dissected; many small isolated hills lie out in front of it as it runs in a curving line from the Rhine near Schaffhausen to the valley of the upper Main. The surface of the plateau is dry, and its altitude gives it a severe climate. There are only a few small towns in this belt, and rural settlements are infrequent. Crop farming is much less important than animal rearing.

To the east and southeast the plateau sinks to the valley of the Danube. The river Danube (G: Donau) rises on the eastern slopes of the Black Forest and reaches the Black Sea by a course of over 1,700 miles. Its romantic associations have made it perhaps the most familiar river in Europe, but it is not in general a beautiful or attractive stream. Nowhere are its waters as blue as they are reputed, and the river is more often brown with silt than otherwise. Nor is it, at least in its German tract, particularly important for navigation. Its course is very winding. In places its valley is deeply incised, and the water level varies a great

deal with the seasons. The course followed by the Danube in south Germany is something of a compromise between a tendency to slip down the "dip" slope of the Swabian Jura and a tendency to be pushed northward by the discharge of the numerous silt-laden streams that flow northward from the Alps. In its upper course the Danube crosses the limestone hills of Swabia (G: Schwaben). At Ulm it receives the Iller, the first significant Alpine stream to join it. Then in quick succession follow the Lech, Isar, and Inn. There are few towns along the Danube besides Regensburg (formerly Ratisbon, 125,000), a route center at its most northerly bend, and Passau, close to the Austrian border.

Between the Danube and the Alps is the plateau of Bavaria, a gently inclined platform that rises from the river Danube southward until the Alps rise steeply from it. Like the great northern plain, this region was greatly modified during the Ice Age by the large volume of material that was washed outward from the Alps. The area is strewn with boulder clay, morainic deposits, and gravel and sand laid down by the rivers. These deposits have served to smooth out the relief. The present rivers have cut shallow valleys into them and have produced a series of land forms that resemble those of the northern plain. Toward the south, as the amount of end moraine increases, the terrain becomes more uneven. Hollows left by this uneven spread of deposits have been filled with water, and some have in turn accumulated peat and become marsh or moor. Around Munich (G: München) are extensive areas of such moor and also of sand and gravel, producing heath conditions like those found in north Germany. Locally loess has been spread over the surface, improving the soil and making it more suitable for agriculture.

The Bavarian Plateau is predominantly an agricultural region, though the soils are often poor and the winters severe. Munich (1,143,000) is the largest city not only of this area but also of all southern Germany. It lies on the river Isar, between the forested, lake-studded morainic region

and extensive areas of marsh. No site could have been less propitious, but Munich lay upon a routeway running from west to east. It also lay opposite the routes that followed the Engadine and the Brenner across into Italy. But accident played its part in the rise of Munich. It was no better placed for trade than many other cities in this area but was chosen as capital by the Bavarian dukes. On it they bestowed their care and wealth, and under their protection it grew to be a great city, railway center, and industrial town.

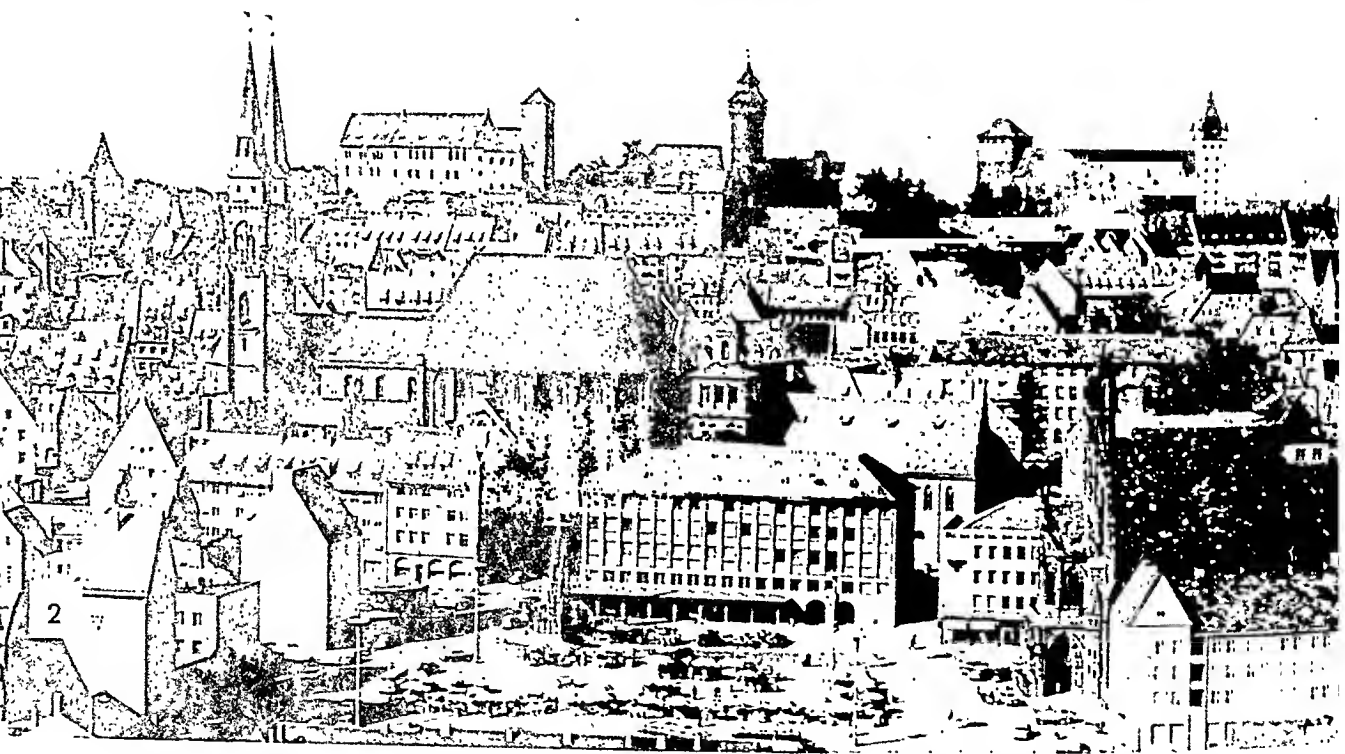
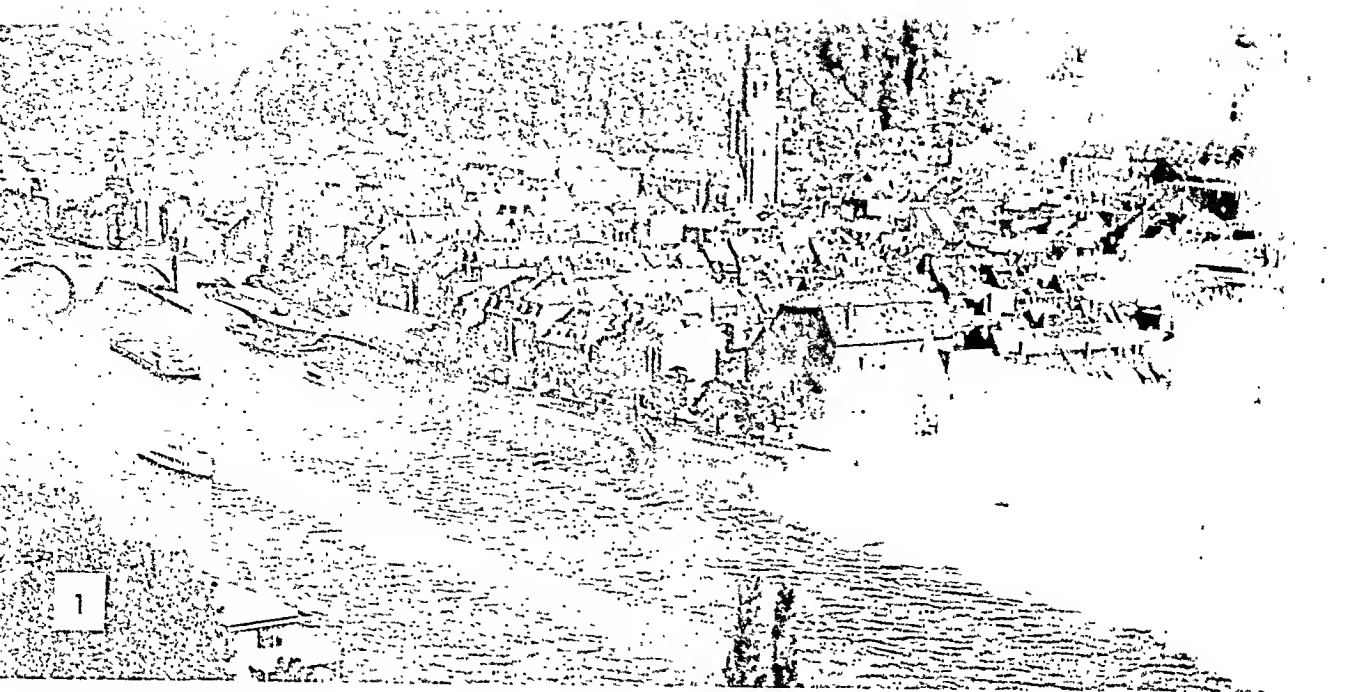
Augsburg (210,000), 40 miles to the northwest, was a Roman town at the crossing of the Lech and was at first of far greater importance than Munich. It was the greatest commercial city of south Germany during the Middle Ages, and was the home of the Renaissance financiers, the Fuggers. It later suffered severely in the wars of the seventeenth century but had no fostering ducal hand to restore it to its former position of prosperity.

To the east the plains and plateaus of south Germany are shut in by the forested hills which separate Germany from Czechoslovakia. Structurally these belong to the hill systems of central Germany. They continue the direction of the Thüringerwald, and are made up of parallel or subparallel ridges. Craft industries grew up in these hills. Woodworking and glass and ceramic manufacture remain important, but the ancient iron industry has now almost vanished from the

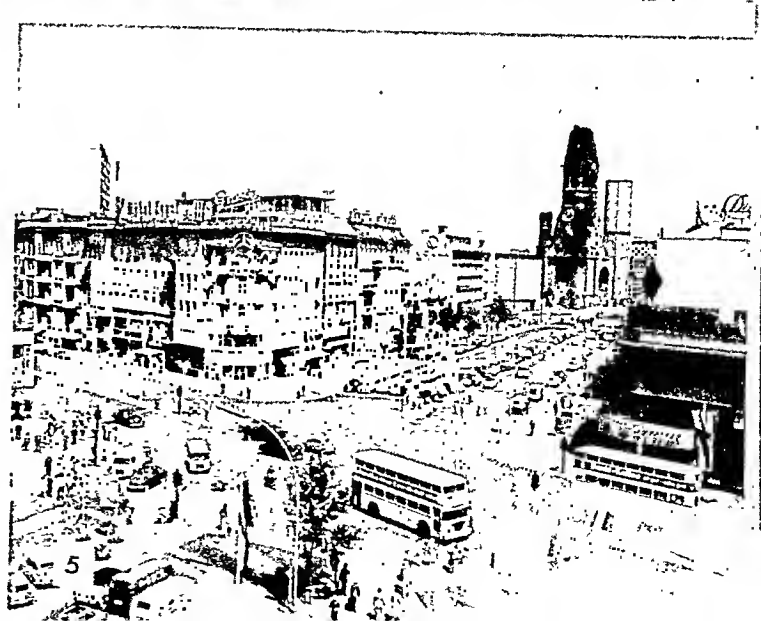
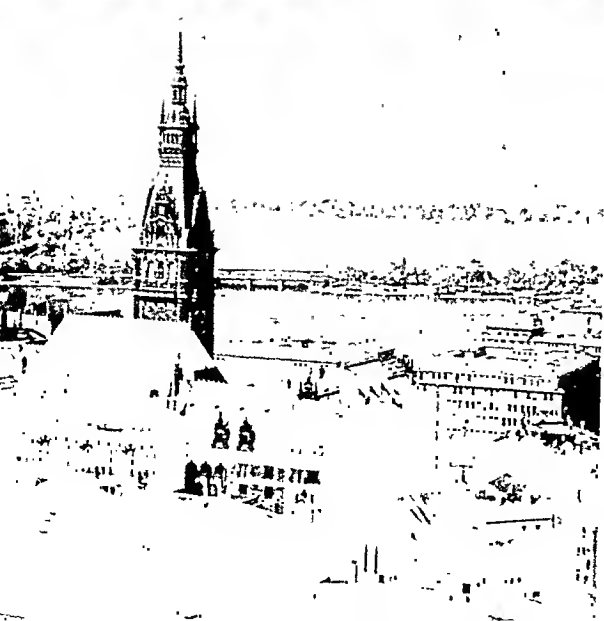
hills, whose small ore deposits and abundant charcoal no longer suffice for a modern industry. These hills are variously known as the Oberpfalz, the Bohemian, and the Bavarian Forest. Near the Austrian border they run down to the Danube, continue beyond the river, and merge into the foothills of the Austrian Alps. In this direction the Bavarian Plateau narrows as the Alps on the south and the Bavarian Forest on the northeast converge, and it ends along the river Inn against the hills of upper Austria.

THE ALPS

Only a small extent of the Alpine Mountains lie within Germany, whose southern frontier follows in part the most northerly of the mountain ranges. Only the foothills are German. These have a wild beauty that attracts tourists, and in their recesses are many small but widely known resorts, of which Garmisch-Partenkirchen, Oberammergau, and Berchtesgaden, now purged of its earlier associations, are the most famous. The chief resource of this region is its water power. Electric current is generated and transmitted by cable to many parts of south Germany. It has given rise to many small industries in this area, though the mountains are more noted for what is in reality their less-important product, the wood carvings and similar articles produced by the artistry of the peasants.



The photographs on this page show the great variety of German cities: (1) medieval Heidelberg, with its castle and fragments of its city walls, beside the Neckar (German Information Center); (2) Nuremberg, also a medieval city, but almost completely destroyed by bombing, and now rebuilt. On the hill is the old castle; in the foreground the market place (Lufthansa Archiv); (3) the textile manufacturing city of Wuppertal lies along the narrow valley of the river Wupper. To economize on space, the city's transport system, the Schwebebahn, runs, suspended from overhead rails, above the river. It is visible to the left of the picture (Presse- und Informationsamt); (4) Hamburg is the bustling commercial capital of north Germany, now entirely rebuilt after its wartime destruction. In the distance is the Alster, whose lakes make so attractive a feature of the city (Lufthansa Archiv); (5) West Berlin is almost wholly rebuilt. The view is of the Kurfürstendamm. The ruin of the Gedächtnis Kirche are preserved as a reminder of the city's destruction (Presse- und Informationsamt).



Divided Germany

20

The conference which met at Potsdam in August, 1945, envisaged a united Germany divided into Zones and occupied by the Allied armies only for a short period. Berlin was expected again to assume its earlier role of German capital, but until this should happen it was also to be divided and occupied. Both the zonal boundaries in Germany as a whole and the sector lines in Berlin were drawn along existing boundary lines. No one at the time expected these to become hard boundaries. It was assumed that Germany would be treated as an economic unit, and that there would be no impediments to trade among the four zones.

These hopes were doomed to early disappointment. There was from the start no real economic cooperation between the Soviet-occupied and the Western Zones, and the three Western Zones took steps to build some degree of unity among themselves. The American and British Zones merged their economies, and were soon joined by the French. Economic union led to political. In 1949, the Basic Law, or constitution, of West Germany was formulated, and the Bundesrepublik, or German Federal Republic, came into existence. In 1955, the Federal Republic became sovereign, and Allied armed forces remained in West Germany only with the agreement—the

Occupation Statute—of the West German government.

In the meanwhile, events in Berlin had followed a similar course. The quadripartite control of the city broke down; its three Western Sectors were merged to make the city of West Berlin, while East Berlin became, for practical purposes, a part of the Soviet-held Zone. The attempt to blockade and thus to suffocate West Berlin in 1948 was circumvented by the airlift, and the city has since been an island in a hostile East Germany.

The progressive removal of controls on West Germany was accompanied by its absorption into the economy of western Europe. Germany has always had close ties with its western neighbors. These have been intensified with the creation of the European Coal and Steel Community, Euratom, and the European Economic Community, in

all of which West Germany is an active and important member.

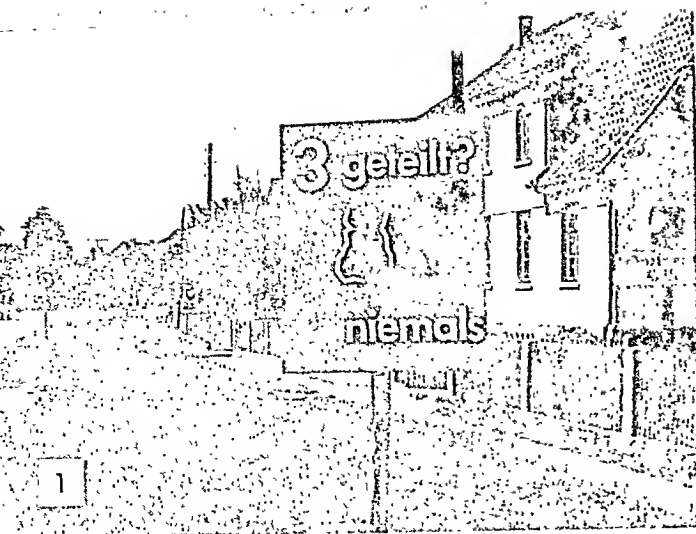
Concurrently ties have been woven between East Germany, formally the German Democratic Republic, and fellow members of the Communist bloc. East Germany, along with Poland and Czechoslovakia, is a member of the Council for Mutual Economic Assistance (see page 92) as well as of the military Warsaw Pact.

THE ECONOMIC UNITY OF GERMANY

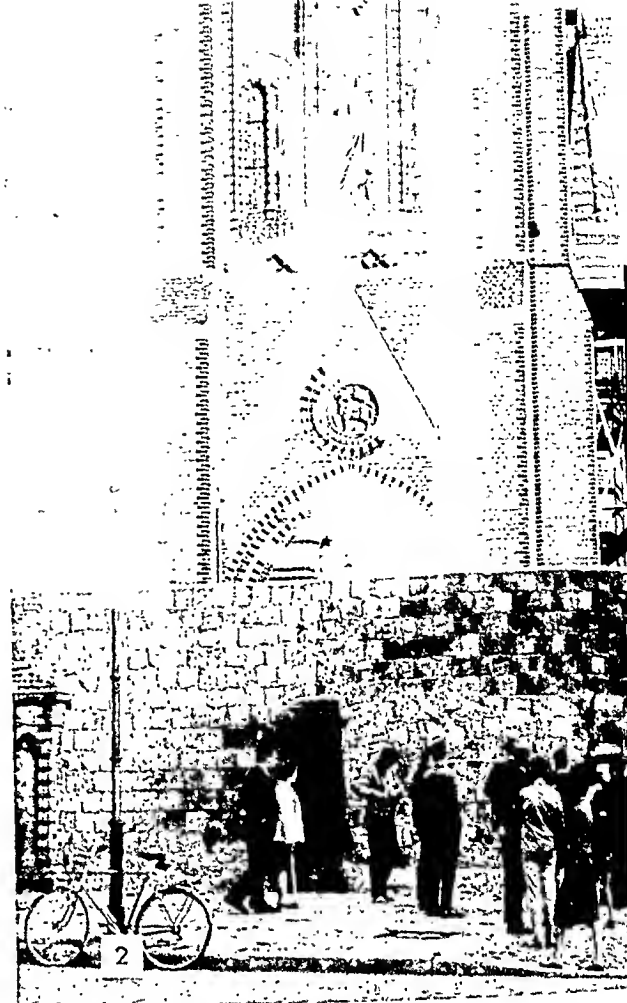
During the nineteenth century and early years of the twentieth the whole of Germany was welded into a single economic unit. Railroads spread from end to end, and the industries, which were, in

FIGURE 20-1. The partition of Germany.





These two photographs reflect the divided nature of Germany: (1) a roadside protest in West Germany: "Divided into three: Never" (N. J. G. Pounds); (2) the Wall in Berlin (Presse- und Informationsamt).



general, established later than the means of transportation, became widely distributed, relying on rail and canal for the exchange of their products.

Much of the manufacturing industry and most of the mechanism by which its raw materials and finished products were transported were destroyed in the course of the war. It was anticipated that most would in time be rebuilt, and that the future pattern of industry would be broadly similar to that of the past. If a division had not arisen in Germany, this might well have been the outcome. As it happened, however, the Iron Curtain fell across the land, dividing it into two separate parts between which commercial contact has been negligible. The future economic pattern was fundamentally influenced by this. Each zone rebuilt and extended its industries according to its own needs and those of its allies. At one time the two zones would in many respects have supplemented one another; but during the past 15 years each has developed so that they are no longer complementary. The chemical industries, which before the Second World War were to some extent concen-

trated in East Germany, have now been strongly developed in West. On the other hand, the steel industry, formerly concentrated in West Germany, has now undergone a powerful development in East.

POPULATION

The population of Germany in 1939 was 69,622,500. Its distribution was very uneven. Densely settled and highly urbanized areas lay close to sparsely populated heath, moor, and mountain. The most strongly marked feature of the distribution of German population was the belt of dense settlement which extended from Silesia to the lower Rhineland, along the Börde and the margins of the central highlands. Within this area population was particularly concentrated in four areas: upper Silesia, Saxony, the Börde of Hanover, and the Ruhr. These regions were all highly industrialized, and the greater part of the population in all of them lived in towns and derived its livelihood from work in manufacturing or commerce.

Nevertheless, these areas are all highly productive agriculturally, and employment on the land remains important. A belt of dense population, second, follows the river Rhine from the Ruhr area upstream to the borders of Switzerland, with extensions up the Main, Neckar, and Mosel. There are also a number of smaller areas, usually centering in a particular town, where population is dense: the districts round Nuremberg, Bremen, Hamburg, and Berlin.

This pattern of population was not greatly changed by the war; only its density was increased in West Germany by the influx of refugees (see page 246). The population of Germany in 1939 was 69,622,500; in 1946 it was 64,498,000, notwithstanding its diminution in area by about 25 per cent. By 1962 it had risen to 77,618,300, made up in 1963 as shown in Table 20-1.

TABLE 20-1

West Germany	57,864,500
East Germany	17,181,083
West Berlin	2,186,200
East Berlin	1,065,296

Most of the German population formerly living east of the Oder-Neisse line, inside the boundaries of Czechoslovakia and in the countries east and southeast of Austria, has returned to Germany as refugees. Their number is estimated as shown in Table 20-2. The number in East Germany has since been somewhat reduced by escape to West, and that in West Germany has increased proportionately.

TABLE 20-2

Zone	Number of refugees	Percentage of population
West Germany (1957)	12,177,000	23
East Germany (1956)	4,300,000	26
Total	16,477,000	

One of the most extraordinary features of Germany in recent years has been the absorption of at least the majority of the refugees into civilian

employment. Industrial workers have had no difficulty in finding employment since the economic recovery of West Germany began, and only the refugee members of the farming community have in general experienced difficulty and hardship in recent years. Indeed, it could be said of West Germany that the economic progress that has been achieved would have been impossible without the labor provided by a steady stream of refugees. The cutting off of this supply may perhaps be one of the more serious consequences to West Germany of the building of the wall along the sector line in Berlin in August, 1961.

Urban Settlement. The German population is relatively highly urbanized. Berlin, the second largest city in Europe, had in 1939 a population of 4,332,000. In 1949 it was estimated to have been reduced to 3,307,900, and it was 3,235,000 in 1963. There were, in 1939, 58 cities with a population each of over 100,000 as against 79 in England and Wales and 26 in France. In 1963 there were 55 cities in West Germany of over 100,000, and 10 in East, in addition to Berlin itself. No less than 34 per cent of the population of West Germany and 16 per cent of that of East Germany lives in cities of this size.

Though many of them had expanded greatly during the nineteenth century, most German cities had until the last war a nucleus which was medieval in plan and sometimes only a little younger in construction. The narrow winding streets; the tall, sometimes timbered buildings, with highly decorated facades; the marketplace; the guildhall; and the ancient walls, or at least the course which they once followed, were common to almost all. In some cities, these features were so strongly developed that they became an attraction to the tourist. Even in the heart of rebuilt Dortmund and Cologne something of this ancient beauty can be discerned. On the coalfields of both the east and west a few nineteenth-century towns have grown up which are no less congested than the older towns and very much uglier.

Even the smallest towns of medieval Germany were enclosed by walls. Space within the walls was valuable. It was filled to capacity, and streets were

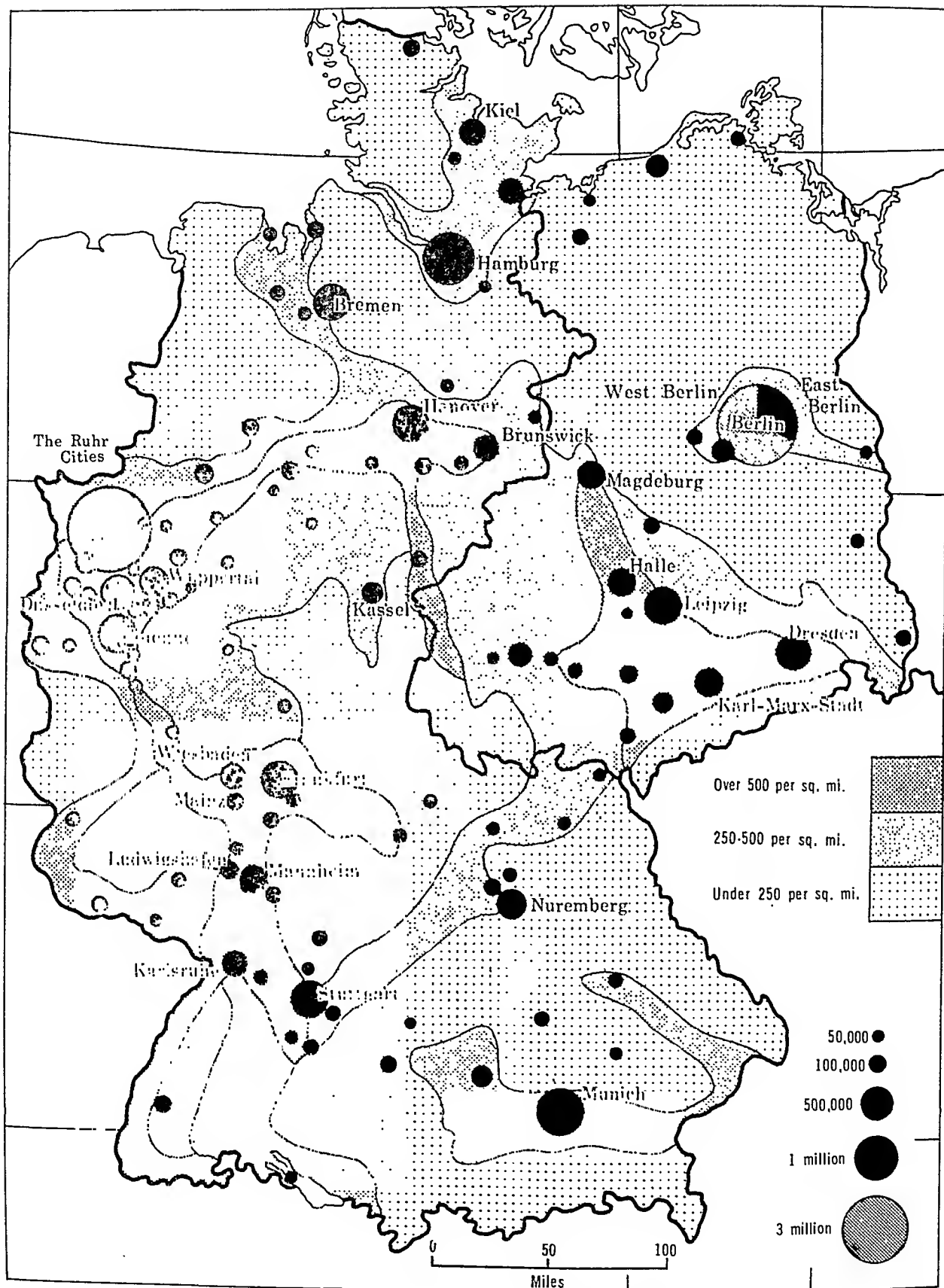
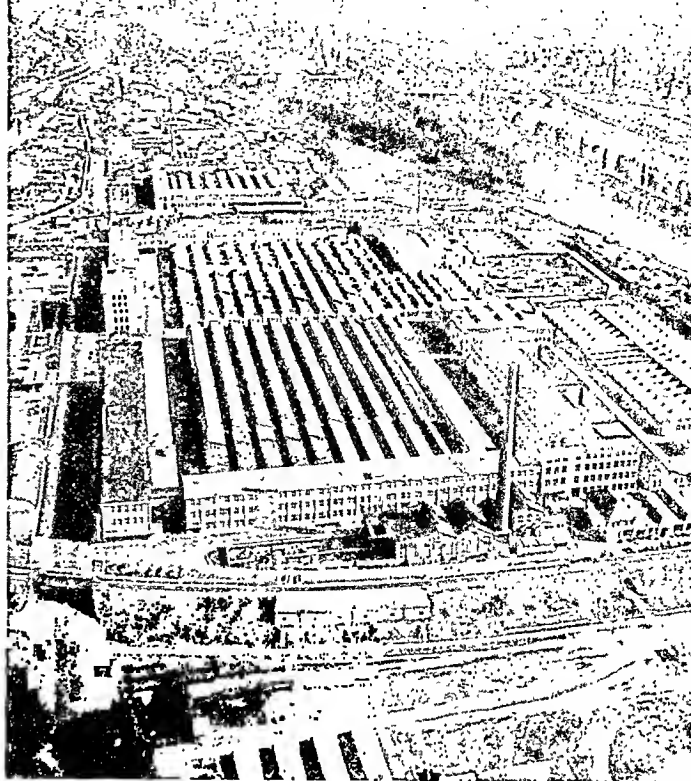


FIGURE 20-2. Germany: distribution of population and larger cities.

The Daimler-Benz automobile factory near Stuttgart. The river is the Neckar. (*Aero Exploration.*)



narrow and houses tall. Only in modern times have the German cities burst through their confining ramparts and spread into the surrounding countryside. Most show today a sharp contrast between the older and more closely built area and the more recent spread of houses and workshops. With the greatest regularity the streets become a yard or two wider and the buildings a story or two lower as the line of the town walls is passed. A feature of most European towns is the distance of the railway station from the town center. Only in exceptional cases was the railroad able, as at Cologne, to enter the confines of the ancient town; usually it kept to the outskirts.

Rural Settlement. Much of Germany was settled by colonists coming from the west. The pattern of their settlement was determined in part by their own traditions and social structure, in part by conditions imposed by the environment. The German village is generally nucleated, the houses lying close to one another. The nucleated villages are themselves divided into a number of distinct groups. The close group of brightly colored houses, surrounded by the unfenced and treeless open fields of the village community, is a familiar feature of the good agricultural lands of the Börde and Rhineland. In the forests, settlements were

more often made on each side of the trail as it ran through the woods, and each settler cleared a narrow strip of land reaching back from the road. In the marshland areas of the northern coast the village patterns resembled those of the "forest" villages, being drawn out along the sinuous lines of the protective dikes, which could alone ensure that the village remained beyond the reach of floods. In parts of central Germany a round, or ring-fence, village pattern exists, possibly derived from a Slavonic settlement plan adapted to a pastoral economy. The central space of the village may have served as a pound for the animals. Areas of poor soil, whether on the geest, or sandy areas, of the northern plain or in the hills of the center and south, are commonly distinguished by a settlement pattern which consists of isolated dwellings or at most of very small groups of houses.

While the German language is spoken in all parts of the German state, a number of distinct dialects survive, especially in the north and the south. During the Middle Ages there were three groups of German dialects. Of these Low German was spoken over most of the northern plain, though there were originally marked differences between the dialects of east and west. The Dutch and Frisian languages, the latter now nearly extinct, were related to Low German. Middle Ger-

man was the language of the hilly country of central Germany. It was a Middle German dialect that became the basis of modern literary German. High German embraced the dialects of south Germany, Switzerland, and Austria. These dialect differences have by no means disappeared, though standard German is used throughout the country. Languages other than German were of no great significance in the Germany of 1939, though a small number of Danes lived and continue to live in the German area of Schleswig, and in the forested lakeland southeast of Berlin there remains a colony of Wends, who speak a language akin to Polish.

During the last two decades West and East Germany have pursued economic policies so different that it is difficult to consider either the changes wrought or their geographical consequences for Germany as a whole. The economic geography of each of the two Germanys is therefore examined separately.

West Germany

Germany remains to a far greater extent than the United Kingdom an agricultural country. Before the Second World War about 20 per cent of all employed persons in Germany were engaged in agriculture, and in 1961, about 15 per cent of those in West Germany were so employed. Nevertheless, Germany as a whole cannot be said to be a naturally fertile country. Large areas of central and south Germany lie at too high an altitude or are too hilly to be cultivated, and much of the northern plain is covered with infertile sands and gravels (see page 253).

In the northern plain, where the drier soils tend to be infertile and better soils too wet for cultivation, grass, fodder crops, and potatoes are widely grown, and the most important cereals are rye and oats. Very broadly one can distinguish three cropping regions in the plain: a grass, fodder, and dairying region to the northwest; a cropping dominated by rye and potatoes, with a considerable grass and fodder acreage, along the Baltic coast; and an inland region where soils are in general

drier, grass and fodder less important, and rye and potatoes the dominant crops. Forest is extensive in all parts of the northern plain, and particularly so on the areas of sandy soil.

Along the southern margin of the northern plain is the narrow, interrupted loess belt, one of the few areas in Germany of outstandingly good soil. Most of it is under cultivation; grazing land is very restricted in area, and wheat, sugar beets, and potatoes are highly important.

The hills which cover much of central and south Germany are naturally much less productive than the loess belt, but within the hills are numerous small, fertile basins and valleys. Mixed farming is carried on over much of the region, with wheat an important crop in the better areas. The more productive parts are, however, separated by upland areas which have heavy rainfall, severe winters, and cool summers. The soil in general is poor, and crop farming is unimportant. Much of these areas is forested or provides rough grazing.

The valley of the Rhine from Mainz upstream to the Swiss border provides an exception. This is, by contrast, a region of alluvial and loessic soils, of hot summers and relatively short and mild winters. It is in consequence intensively cultivated; wheat is important, and extensive areas are under grapevines and fruit orchards.

Much of West Germany is characterized by small peasant farms, which in Württemberg and Bavaria are uneconomically small. German agriculture has been for the past century highly protected, and the effect of tariffs on imported agriculture has been to protect an agricultural system which is, in many parts of the country, outdated. In general German agriculture is neither highly mechanized nor very efficient. As in France, the wasteful practice of open-field husbandry continues. The plow and harrow are drawn sometimes by the horse or mule, sometimes by the ox. A crop rotation is used, and in many parts of Germany there is an adequate use of fertilizer. Indeed, many parts, especially the infertile, sandy heaths, would be quite valueless without large quantities of artificial fertilizer. Germany is fortunate in being able to supply this, both from her chemical

industry and from the "Thomas slag," waste from the steelworks consisting partly of lime and phosphorus. The output of German agriculture is large by virtue rather of the great industry of the German peasant than of his use of machines and modern methods. At the present time, West German agriculture is becoming exposed to competition from France and other members of the European Economic Community, and the German government is faced with the alternatives of modernizing or facing the bankruptcy of at least part of its farming community. Under government supervision fragmented farms are very slowly being consolidated, small farms enlarged, and everywhere the use of machines and fertilizers increased. The efficiency of West Germany agriculture must be increased greatly if in the near future it is to be exposed to the competition of that of fellow members of the Common Market.

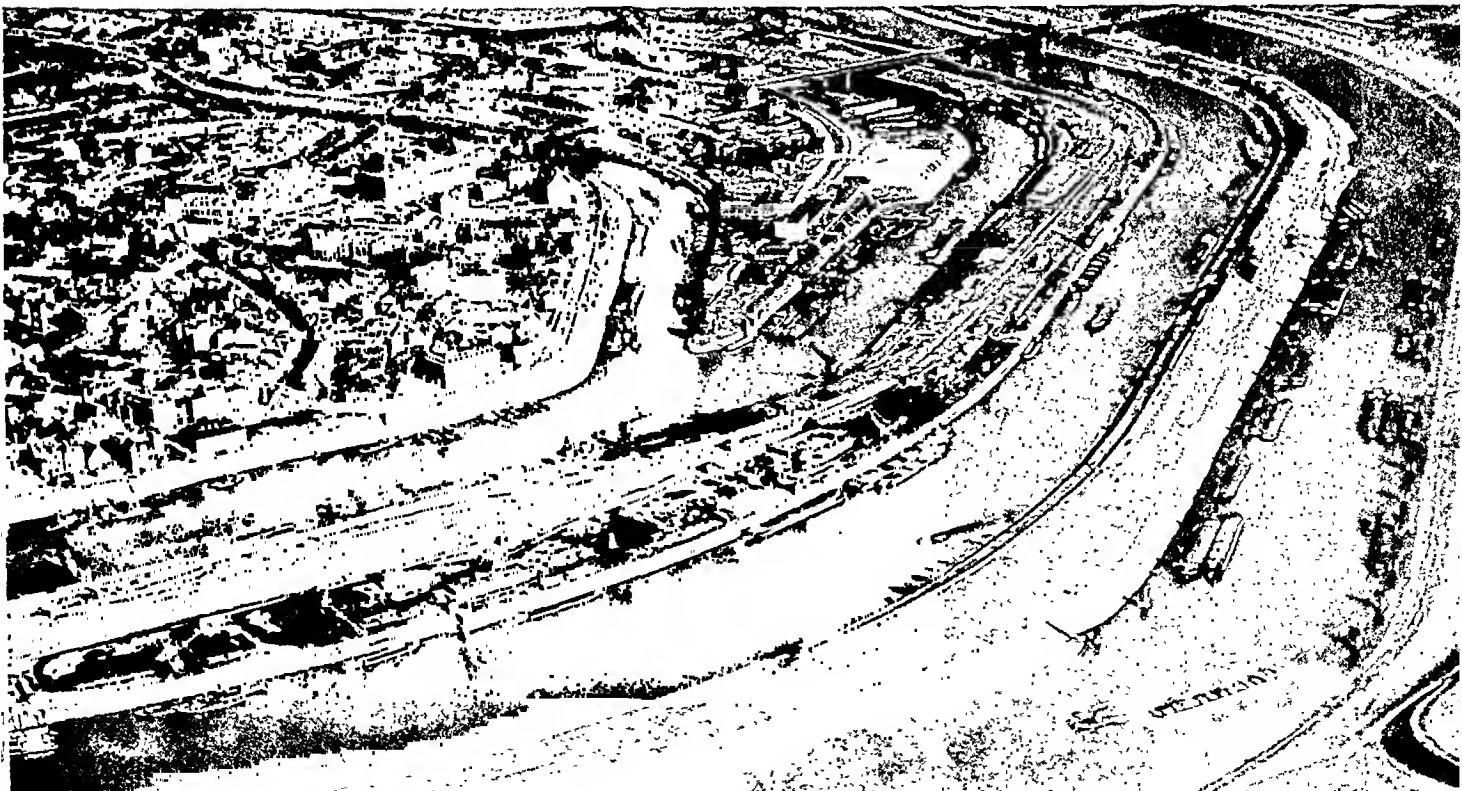
West Germany is a net food importer of con-

siderable importance. Foodstuffs make up no less than a quarter of all imports, and include not only goods of tropical origin but also much of the wheat consumed. The rapid rise in living standards in recent years has greatly reduced the demand for rye, which West Germany is well suited to produce, and increased that for wheat, for which conditions are in general far less suited. Higher living standards create a greater demand for meat and dairy produce, and one may anticipate a diminution of the areas under crops, with the exception of fodder, and an increase of that given over to stock.

MANUFACTURING

Germany is the most highly industrialized country on the mainland of Europe, and about 26 per cent of all employed persons in West Germany are engaged in manufacturing industries. The modern

The river harbor of Duisburg-Ruhrort, one of the largest inland ports in the world. Note that the shipping is almost wholly made up of barges which carry coal and iron ore. To the left is Ruhrort; in the distance, the locks controlling the entrance to the Herne Canal, which traverses the Ruhr industrial region. The dock basins open toward the camera into the Rhine.



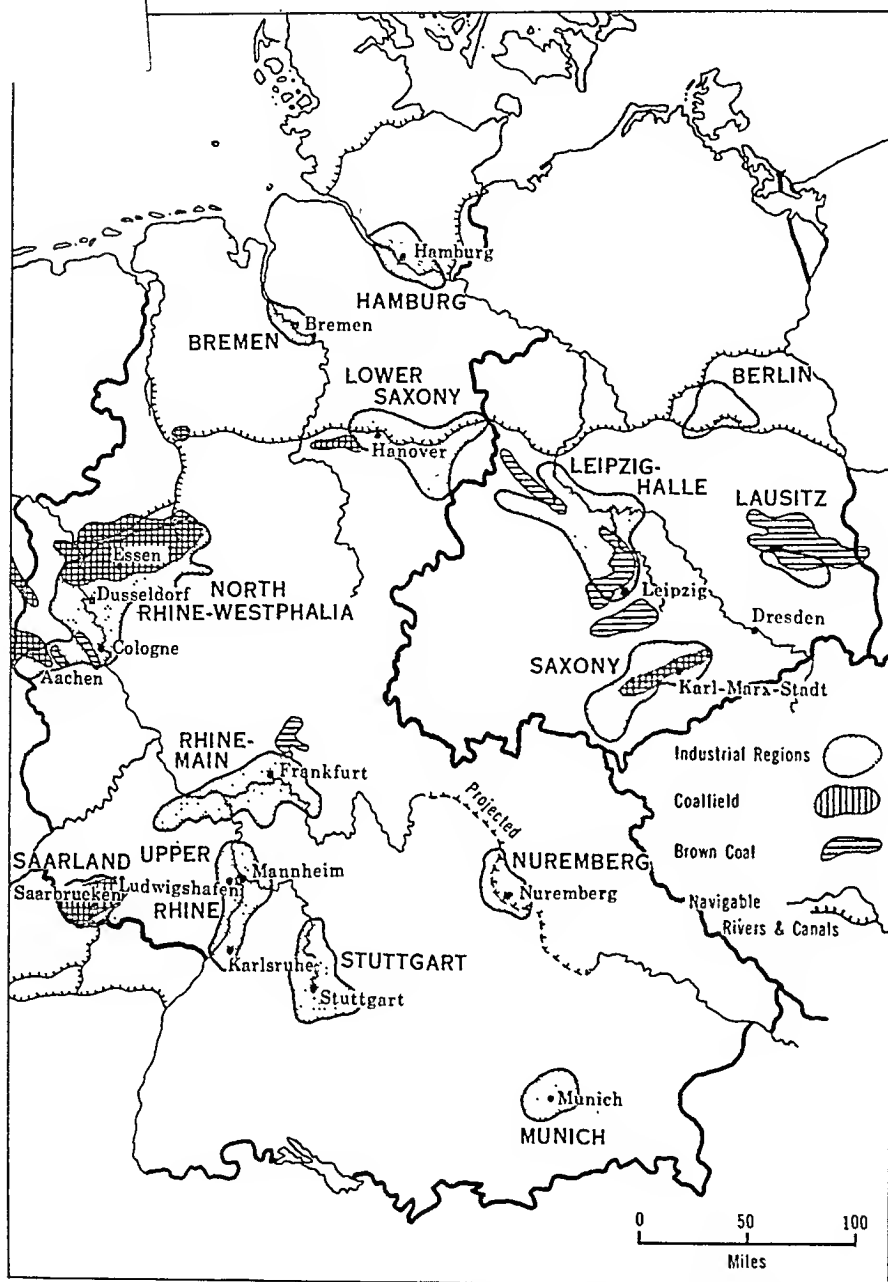


FIGURE 20-3. Germany: coalfields and industrial regions.

industry of Germany derives in part from medieval crafts. Until a little over a century ago most of the manufactured output was from small, domestic workshops, and the craftsmen were organized on a guild basis. It was not until the latter half of the nineteenth century that a modern factory industry really developed, though there had for many years been an iron and steel industry in the

Rhineland. The rapid development of manufacturing industries accompanied and followed rather than, as in England, preceded the development of a railway system. A consequence of this has been that, despite the existence of certain heavily industrialized regions, German industries are less concentrated than are those of Great Britain or even of Belgium.

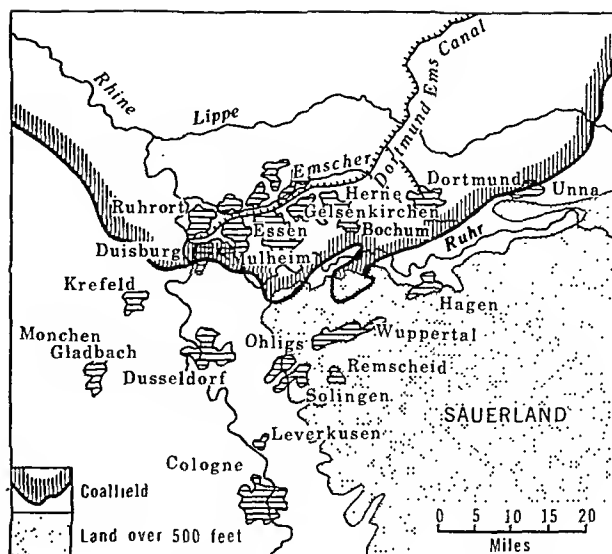


FIGURE 20-4. The Ruhr industrial region.

The rapid development of German industries came only after 1850, by which time a customs union had been established covering most of Germany. Thenceforward the German iron and steel industry expanded, quickly displacing imports of Great Britain, Belgium, and other countries. By the end of the century Germany had replaced Great Britain as the greatest steel producer in Europe. Bismarck had described his policy as one of "blood and iron." The English economist J. M. Keynes observed that "the German Empire has been built more truly on coal and iron."¹

The resources which Germany possessed within her prewar boundaries were, indeed, very considerable, and West Germany has inherited the lion's share of them. West Germany is, after Great Britain, the largest producer of bituminous coal in Europe, with an annual output of 141,250,000 tons in 1962. Most of this—about 81 per cent—comes from the Ruhr coalfield district, and most of the remainder from the Saarland (11.5 per cent) and the Aachen coalfield (6 per cent). There is in addition a production of over 100 million tons of lignite, most of it mined from open pits to the west of Cologne in the lower Rhineland. Lignite has a low heating value and will not bear

the cost of distant transport. Most of it is compressed into briquettes, having a lower moisture content than the original coal, and burned close to the pits to generate electric power or exported short distances for factory and domestic uses.

West Germany is not well placed for supplies of iron ore. The reserves in the hills on each side of the middle Rhine, formerly of great importance, are still worked, but the output is now very small. A low-grade ore is mined in the Salzgitter district of Hanover, but cannot easily compete with imported ores, and its production and use have been subsidized by the government in recent years. The production of nonferrous metals is also small and is now almost limited to the lead and zinc in the Harz Mountains. Common salt and potash are worked in the lower Rhineland. Petroleum is found in Germany, particularly in Lower Saxony, and in recent years production has increased so considerably that it covers almost a third of West Germany's needs. Drilling may soon be extended beneath the North Sea.

German manufacturing industry had become before the Second World War almost a byword for efficiency. This efficiency was achieved, however, more by virtue of a skilled and industrious labor force than by the use of sophisticated machines and labor-saving devices. This has changed in West Germany since the war, and the technical level of industry has been immeasurably increased.

¹ J. M. Keynes, *The Economic Consequences of the Peace*, London, pp. 74-75, 1919.

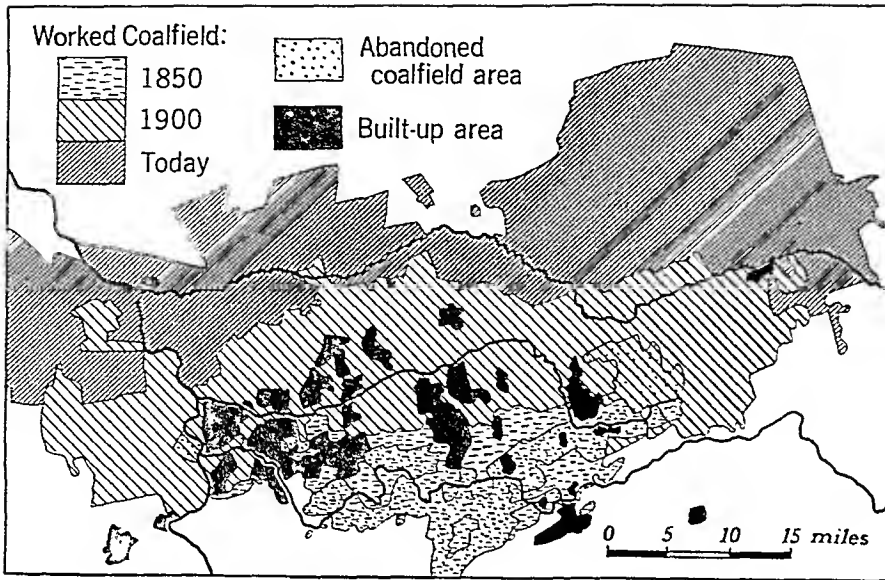


FIGURE 20-5. The Ruhr coalfield; the northward spread of mining.

One area, the Ruhr, is of exceptional importance in the geographical pattern of German industry, but scattered over most of West Germany are cities and groups of cities, large and small, each with its own specialized production, each deriving power and raw materials from a distance, each having good communications by road, rail, and canal with the ports, coalfields, and other cities and industrial centers. Foremost among these are, apart from the Ruhr industrial district, the northern industrial ports of Bremen and Hamburg; the Hanover-Brunswick industrial region; the lower Rhine, focusing on the cities of Cologne and Düsseldorf; the region lying west of the lower Rhine and including Aachen, Krefeld, and

Mönchen-Gladbach; the Main-Rhine and upper Rhine regions; Stuttgart and its neighboring cities; and Munich and Nuremberg.

It is difficult to specify areas of industrial concentration for each of these regions. None is as narrow in its industrial base as the Ruhr, where coal mining and steel production and fabrication predominate almost to the exclusion of other branches of industry. Mechanical engineering is important in the Stuttgart and Nuremberg regions; heavy chemicals in the upper Rhine and Rhine-Main as well as in the Cologne and Düsseldorf area of the lower Rhine. Shipbuilding is important in the northern port cities, as well as industries associated with the preparation and fabrication of

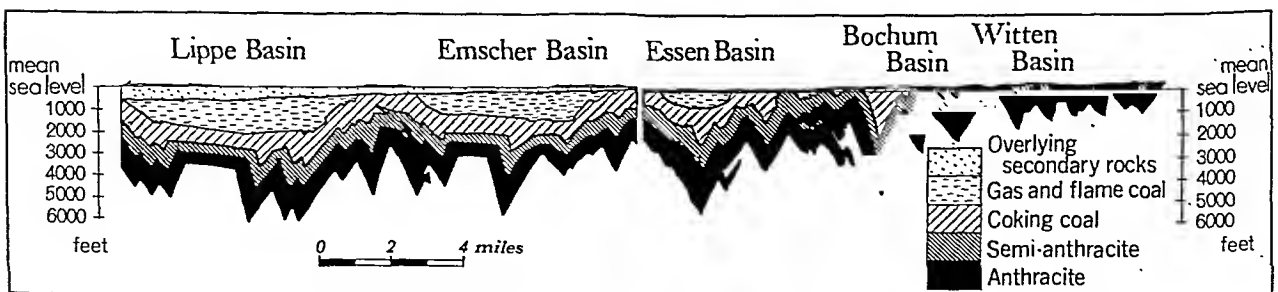


FIGURE 20-6. The Ruhr coalfield: geological cross section, showing the increasing depth of coal to the north (left).

imported foodstuffs, ores, and other raw materials. Some manufacturing industries are located in relatively small cities which they completely dominate—the Volkswagen factory dominates Wolfsburg; the Mercedes works the city of Unterturkheim; the Zeiss camera and instrument works, Oberkochen, and ball-bearing manufacture, Schweinfurth.

TRANSPORTATION

During the nineteenth century Germany built up an elaborate and efficient mechanism of transportation, more developed in western than in eastern Germany. Here the railway network was one of the most complete in Europe. Through routes connected all the important towns with one another, and the railway service before the last war was frequent and fast. The railway network was most dense in the Ruhr and the central Rhineland, but in no part of the country was any place more than 10 miles from the nearest railroad.

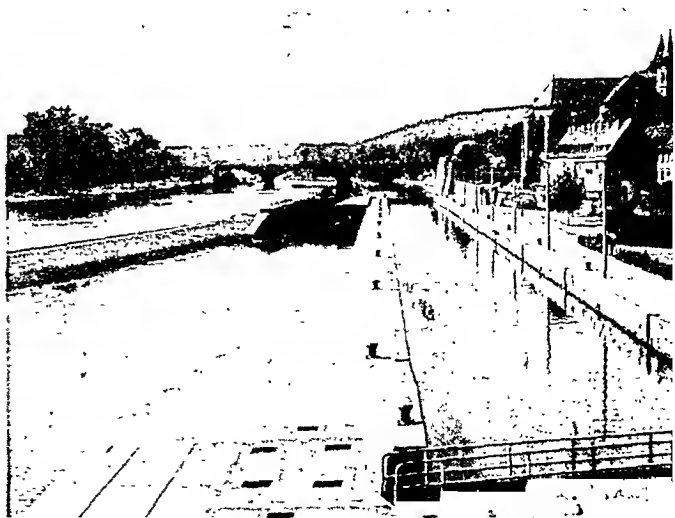
Railway transportation is supplemented by a highly developed system of canals. Germany had an advantage in this respect in the number of large and easily navigated rivers. In the later years of the nineteenth century, a number of canals were constructed and an ambitious scheme of future building put forward. The Dortmund-Ems Canal was cut to link the eastern part of the Ruhr with the North Sea port of Emden, and the Rhine-Herne Canal and the Lippe Canal were later cut to join it with the Rhine. In the present century the Mittelland Canal has been dug eastward

through Hanover to the Elbe at Magdeburg, and today the canal link eastward to Berlin is one of the links between that city and the west.

In the south, an old and narrow canal joins the upper Main Valley at Bamberg with the Danube near Regensburg. This waterway is too small to serve modern needs, incapable of being used by the larger barges, and is now being replaced by a larger waterway which will be an effective link between the Rhine and Danube systems. The existing canal network allows Ruhr coal to be sent over much of West Germany, and with the completion of the Rhine-Main-Danube waterway will facilitate its distribution to Austria and even beyond. A canal of a rather different nature is the Kiel Canal, between the estuary of the Elbe and the town of Kiel, on the Baltic coast of Schleswig. Although it has a certain commercial importance, this canal was cut for essentially military purposes to join the naval base of Kiel with the North Sea.

The Rhine from the Dutch frontier up to Mannheim is the most used German waterway. It carries large quantities of coal, distributed from the Ruhr port of Duisburg-Ruhrort, and also iron ore, grain, and timber. Above Mannheim the river is more shallow, and the lowness of the water level in winter has been a serious obstacle, but a series of dams and locks has regulated the water level and improved conditions of navigation up to the Swiss port of Basel. Much of the barge traffic for Switzerland uses the Alsatian Canal (page 202). The lower courses of the Main, Neckar, Ems, and Elbe are also used. There is, however,

The Main has been made a navigable river and is now in process of being linked by a large canal with the Danube. The photograph shows the locks at Wurzburg, one of the many lock systems which allow barges to ascend the river. (N. J. G. Pounds.)



little traffic on either the Weser or the Danube; neither flows through highly industrialized areas, nor close to important mineral resources. This is likely to change with the completion of the Main-Danube Canal. This project is now well advanced. It will replace an obsolete canal which formerly linked these two rivers, and will provide a waterway for large barges to southeast Germany, Austria, and the lower Danubian countries.

The road network of Germany was in the past much less effective and efficient than the rail. The quality of the roads was in general poor and unsuited to heavy or fast traffic. During the 1930s, however, a system of expressways, or *Autobahnen*, was designed. Its purpose was primarily a military one, but since the Second World War it has been extended, and now is one of the most important means of transportation in West Germany.

Germany is linked by road, rail, and water communications with each of her neighbors, and much of her foreign trade is across her land boundaries. The ports of the Low Countries serve as outlets for the Ruhr. The German government tried during the interwar years to divert as much of this trade to the German North Sea ports as possible, and this was in part the objective of German canal construction. The North Sea ports are Bremen and Hamburg. Each handles a very large volume of shipping, and each has an outport, Bremerhaven or Cuxhaven, respectively, which handles passenger traffic and receives vessels unable to make the journey up river. The completion of the projected canal system would enable Bremen and Hamburg to serve more directly the needs of the Ruhr.

COMMERCE

Those who prophesied that a divided Germany could have little economic future have been proved wrong. West Germany has come to have one of the fastest-growing economies in the world in recent years, and the expression "West German economic miracle" (*Wirtschaftswunder*) in no way exaggerates the magnitude of this expansion. The commerce of West Germany today differs greatly from that of the prewar years; food im-

TABLE 20-3. Chief Elements in West Germany's Foreign Trade, 1961 (In Millions of U.S. Dollars)

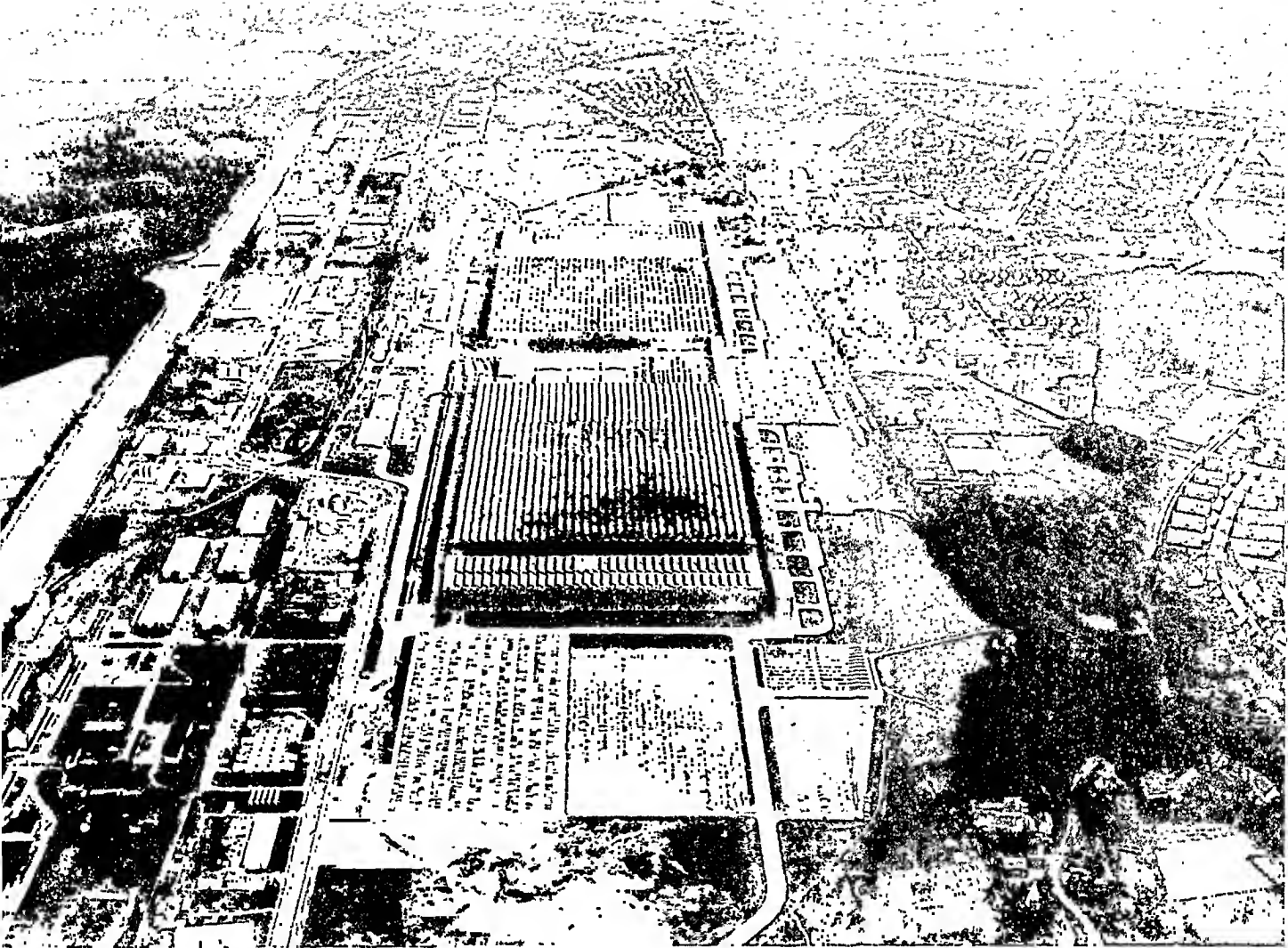
Item	Imports	Exports
Food	2,744.4	205.6
Beverages and tobacco	277.5	43.1
Crude materials, inedible	2,183.4	350.4
Mineral fuels	1,061.2	743.0
Animal and vegetable oils and fats	130.0	36.5
Chemicals	487.4	1,444.6
Manufactured goods	2,684.9	3,089.9
Machinery and transport equipment	1,499.3	6,127.4
Miscellaneous manufactured articles	589.9	1,076.3
Miscellaneous transactions and commodities	621.4	146.8
Total	12,279.5	13,263.6

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1963.

ports are more important; the export of coal is less significant, and that of factory products, especially of the more refined products such as instruments, cameras, machines, and automobiles, has come to be of outstanding importance. The main categories of the export and import trade in 1961 are given in Table 20-3.

East Germany

When the division of Germany took place, in 1945, the economies of the two major divisions presented a strong contrast, not only in the relative importance of agriculture, but also in the range of industrial activity carried on in each. Both West and East Germany have since undergone a radical change. In East Germany manufacturing and mining have increased from 56 per cent of the gross national product in 1950 to 69 per cent in 1961, while the GNP itself increased two and a half times. During this period the



The Volkswagen works were established before the Second World War, but have grown to their present size only since 1950. They lie close to the Mittelland Canal, seen on the left. To the right and in the distance is the new city of Wolfsburg. The whole complex lies almost within sight of the Iron Curtain. (German Information Center.)

economy of East Germany was the fastest growing of any of the east European countries, apart from the Soviet Union.

AGRICULTURE

Agriculture is relatively more important in East Germany than in West, and now occupies about 20 per cent of the employed population. Most of East Germany lies within the northern plain, with a crop- and dairy-farming region in the north, and a large region of prevalingly poor soil, extensive forest, and a rye-potatoes crop pattern. East Germany has an area of loess soil lying in front of the Harz Mountains and extending into

Saxony. In the south, in the hilly parts of Thuringia and Saxony, one finds mixed farming, and along the mountainous southern border forest and upland grazing.

This is traditionally an area of great estates. These are in part a result of the German conquest and colonization of this area during the Middle Ages, but the nature of the climate and soils has contributed to their preservation. The land is not everywhere suited to intensive peasant farming, and in many areas far more capital is required for their development than the peasant was ever able to command.

After the end of the First World War some of these were broken up into smaller holdings,

but on the eve of the Second, farm holdings east of the Elbe remained in general very much larger than the average, not only for Germany but also for the rest of Europe. The existence of large estates and of large farm holdings has been a feature of the eastern, southeastern, and southern margins of western Europe, areas in which the land was conquered and not always adequately settled in the later Middle Ages and subsequent centuries.

There were initially more large estates in East Germany than in West, and fewer small peasant farms. The East German authorities first expropriated the larger landowners, using their land to distribute among the smaller and landless peasants. This was followed by a drive to collectivize the peasant farms. Reasons for this can be found both in Communist theory and in the serious shortage of labor which developed as more and more of the population escaped to the West. Today it is estimated that about 90 per cent of the cropland is collectivized. There were in 1962 over 17,000 collective and state farms, with an average size of about 850 acres. The field patterns have changed—large fields have been formed, capable of being cultivated mechanically—and the numbers of farm machines have also increased. The distribution of crops does not appear to have changed greatly. Wheat and sugar beets remain important in the loess belt, and potatoes and rye are important everywhere, but oats, formerly grown as animal feed, is now grown only on a

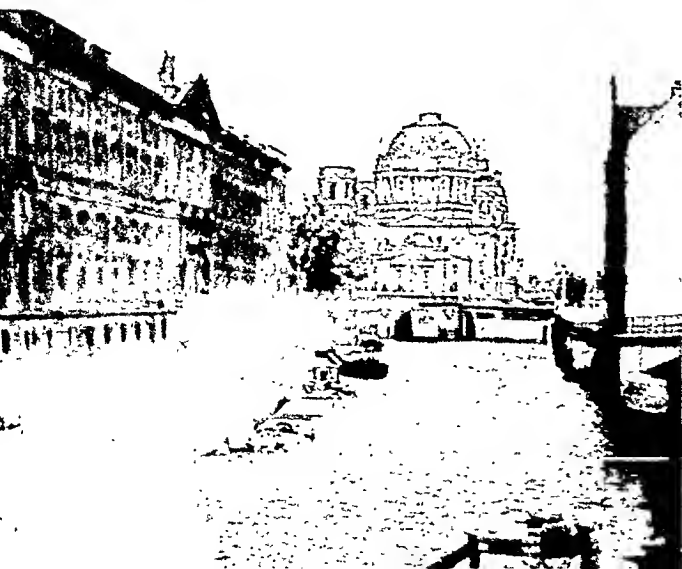
diminishing area, as horses are replaced by tractors.

MANUFACTURING

Manufacturing has always been less developed in East Germany than in West. This is due, in part, to the relative scarcity of good-quality coal, the lack of most metalliferous ores, and the more feudal social structure with its lower purchasing power. The small coalfields which lie along the edge of the Erzgebirge yield scarcely more than 2.5 million tons a year. There are, however, extensive reserves of lignite, which have long been developed. In 1961 production amounted to 237 million tons and this, despite the low calorific value, represents a large fuel production. Lignite has, however, only a limited industrial usefulness. Much of it is bricketted and fed to thermal-electric generators. A low-grade metallurgical fuel and a wide range of chemical products are also obtained from lignite, and in recent years an industrial complex has been built in the Lausitz area, largely on the basis of the local lignite.

Production of iron ore and of most nonferrous metals is too small to be important. Copper has long been obtained from Mansfeld, in Thuringia, but the chief mineral product is the potash salts, obtained from extensive deposits near Halle and constituting the basis of the highly important East German chemical industry.

Apart from greater Berlin, the most important



The ruins of East Berlin are misleading; the economy is growing, and the canals show as much activity as those in West Berlin. (N. J. G. Pounds.)

industrial regions in East Germany are in Saxony. Here the older centers of industry lie close to the Erzgebirge, and the newer, in which brown coal is an important raw material and basic chemicals an important product, are farther to the north.

In recent years the industry of East Germany has been greatly expanded, especially near Magdeburg and Frankfurt-on-Oder, where a large iron and steel plant has been built along the river's bank for convenience in bringing fuel and ore, which are both lacking in East Germany. Other developments have taken place at the East German port of Rostock, and in the forests of the Lausitz region, where at Lauchhammer, Cottbus, Hoyerswerda, and Schwarze Pumpe a wide range of industries which use brown coal either as fuel or raw material has been established.

East Germany inherited much of the textile and synthetic fiber industries of the earlier Germany. Karl-Marx-Stadt, Zwickau, and Plauen, all lying in the foothills of the Erzgebirge, are engaged primarily in textile manufacture, while the synthetic fabrics are more important in the chemical manufacturing centers.

Manufacturing is entirely nationalized; the factories are under government ownership and control, and the order of priorities in industrial expansion and in the allocation of scarce materials is decided by the state's planning authorities. The latter have emphasized the production of capital rather than consumers' goods, and this helps to account for the drab appearance of East German cities when statistics show that East Germany is one of the most productive countries in the Communist bloc.

TRANSPORTATION

The system of transportation and communications was in general less well developed in East than in West Germany. Berlin has always been an important route center, and railroads are well developed in Saxony, but other parts of East Germany are much less well served. The Elbe-Havel Canal joins the Elbe at Magdeburg, where it is linked with the Mittelland Canal and with Berlin, and the Oder-Havel and Oder-Spree Canals extend

eastwards from Berlin to the Oder River. These canals are heavily used, and the Oder itself serves not only to link the Polish industrial region of upper Silesia (page 315) with the Baltic Sea, but also to bring coal and ore to the iron- and steel-works at Eisenhüttenstadt and to carry part of the foreign trade of East Germany.

The foreign trade of East Germany formerly focused on the port of Hamburg. Although this outlet to the avenues of world commerce is still used, Rostock is being developed as East Germany's leading port, and its transport facilities with Berlin and the Saxon and Thuringian industrial areas are being improved.

The road system of East Germany is both less developed and less well maintained than that of West Germany. An *Autobahn* stretches from west to east across the state and sends a branch southward into Bavaria, but most of its traffic is that across the "Zone" between West Germany and West Berlin. In East Germany as a whole, trucks and other forms of industrial transportation predominate.

COMMERCE

East Germany is poorer and outwardly less prosperous than West. Standards of living are lower, and the relatively high productivity of its industry is not reflected in personal well-being and purchasing power. East Germany's large foreign trade is controlled by the government and assumes the form rather of barter than of normal international trade. Most is with fellow members of the Communist bloc, especially with Poland, Czechoslovakia, and the Soviet Union, and consists largely of the exchange of factory products for fuel, raw materials, and foodstuffs.

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Switzerland

21

Switzerland belongs partly to western, partly to central Europe. The western part of the country is French in speech; its drainage by the Rhône is westward into France. The central and eastern parts are German in speech and are oriented rather toward the lands of the Rhine and Danube. In the south Switzerland reaches beyond the limits of the Alps to the margin of the plain of northern Italy. From the region of the Saint Gotthard, rivers flow southward to the Po, westward to the Rhône, and northward to the Rhine. It is a country of hydrographic dispersion and of several languages, and it has no natural boundaries against any of its neighbors; yet it is also a country with no serious minority problems and with no frontier difficulties or territorial ambitions.

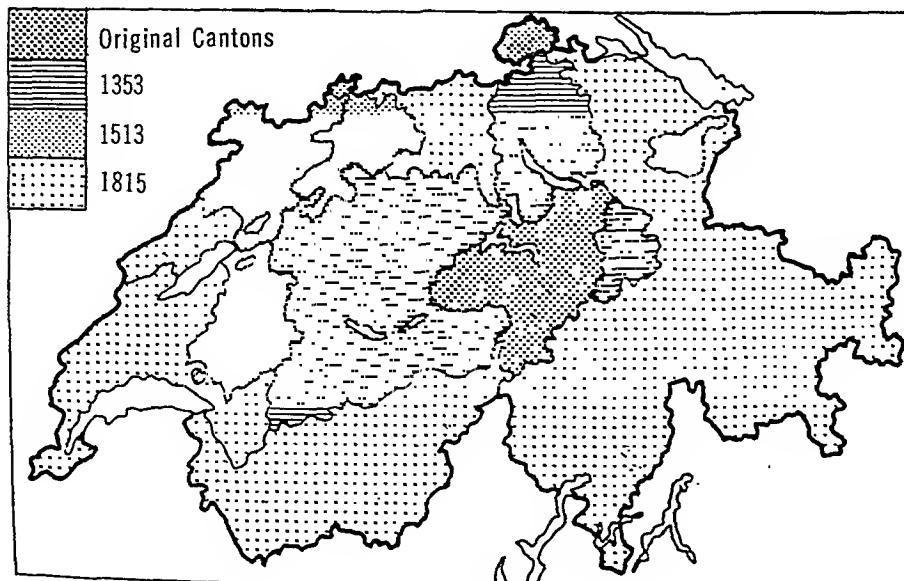
Switzerland has been a country of slow growth and expansion. The confederation originated in the four cantons of Uri, Schwyz, Unterwalden, and Nidwalden, lying around the shores of Lake Lucerne (*G*: Luzern) and guarding the northern approaches to the Saint Gotthard Pass. The parochialism of these valley dwellers, reinforced by the stimulus of Italian urban revolutions in the twelfth and thirteenth centuries, led to their revolt from their territorial lords, which included the Austrian House of Hapsburg. The

trade which, from the first half of the thirteenth century, began to move across the Saint Gotthard Pass between Italy and Germany brought employment and profit to the mountaineers. They controlled one of the most frequented of European trade routes, and their friendship was sought by all who depended upon transalpine trade. Lucerne at the northern end of the lake sought their friendship and alliance and in 1330 entered their confederation. Lucerne was followed by trading cities to east and west: Zug, Zurich, and Bern. The southern approaches to the Saint Gotthard Pass were conquered, and although the Swiss failed to hold all their conquests on this side of the Alps, they retained the upper Ticino Valley. On the north the food-producing regions along the Aare and upper Rhine were absorbed, a necessary step if the unproductive mountain regions and the populous cities were to be fed. Basel, Schaffhausen, and even Mulhouse, trading cities on the routes which ran northward across Germany, entered the confederation. From the later Middle Ages, the French-speaking territories to the west—Vaud (G: Waadt), Valais (G: Wallis), Neuchâtel (G: Neuenburg) and Geneva (F: Genève; G: Genf)—

the northern cantons of Aargau (F: Argovie) and Thurgau (F: Thurgovie), the Italian-speaking canton of Ticino (F: Tessin), and the larger and more complex eastern province of Graubünden (F: Grisons), were all closely associated with the confederation, but it was not until the early years of the nineteenth century that they were formally admitted to membership.

The nucleus of Switzerland remains the German-speaking region. Here are the federal capital Bern, the two largest cities Zurich and Basel (formerly Basle; F: Bâle), and the greater part of the engineering and textile industry of Switzerland. The German-speaking population in 1960 was 69.3 per cent of the total as against 18.9 per cent speaking French, 9.5 per cent speaking Italian, and 1.4 per cent speaking Romansch and other languages. Romansch, like Italian, is a derivative of Latin. It survived, perhaps because of the remoteness of the Engadine where it was spoken, although other similar languages, formerly spoken in various parts of southern Europe, disappeared. Each of the four major languages of Switzerland is regarded as a national language, and may be used anywhere within Switzerland in courts of law

FIGURE 21-1. The growth of the Swiss Confederation from the original "Forest Cantons."



and on formal and public occasions. Romansch became in 1937 the fourth national language. Language differences have never constituted a serious political problem in Switzerland, though minor difficulties do occasionally arise over such matters as education and the seasonal movement of labor from one linguistic area into another.

Religion is another factor making for division in Switzerland. In the sixteenth century the Reformation was an affair of the towns, and it made little headway in the rural districts. Zurich, Basel, and Geneva are predominantly Protestant. This division was in part the result of a social rift between town and country, which derived from the early stages of Swiss history.

PHYSICAL REGIONS

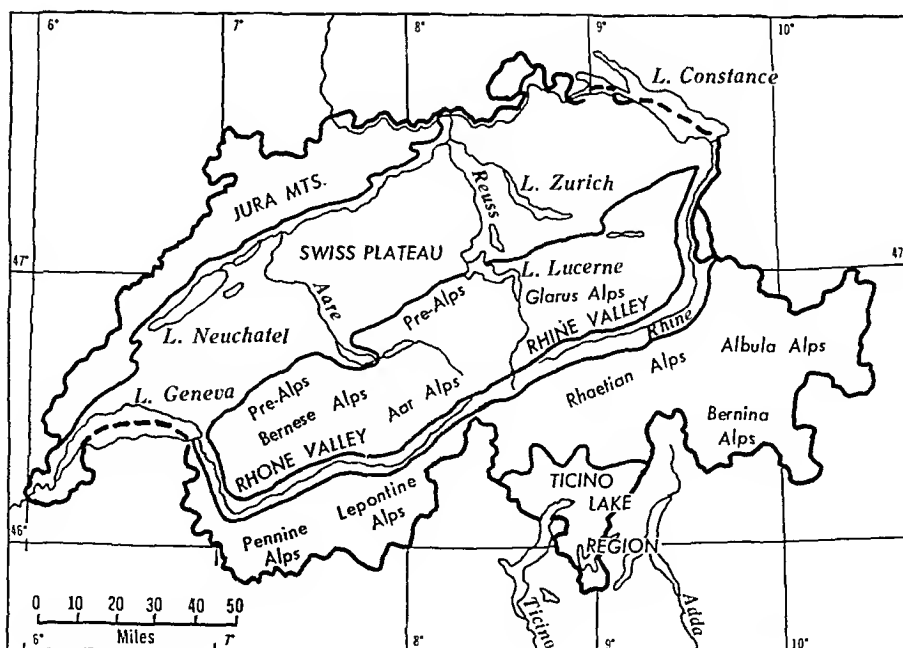
The division of Switzerland by language and by religion bears no relationship to the physical divisions of the country. The latter consist of three belts which trend in a northeast-to-southwest direction. Smallest of these is the chain of the Jura Mountains, of which over a half lies in France. Along its straight and abrupt southeastern

edge the Jura overlooks the misnamed Swiss Plateau, a country of rolling hills, deep valleys, and small lakes. Over half of Switzerland belongs to the third, the Alpine, region.

Jura Mountains. A brief account of the structure and topography of the Jura Mountains has already been given. They consist of a series of close, parallel ridges, lying from northeast to southwest. The limestone rock tends to produce a karst topography. Rivers flow along the valleys, breaking at intervals from one into another by means of the narrow and steep-sided *cluses*, or gaps. Without these the Jura could be crossed only with difficulty, and most of the roads make use of these gaps, which are often dominated by the ruins of a castle that may have served in turn to intimidate or to protect the medieval traveler.

The ridges of the Jura are usually forested. The valley floors have often been cleared, and agriculture is practiced. The climate is severe in the Jura. Altitude reduces the summer heat, and in winter, snow lies for a period of many weeks and often closes the passes and cuts off towns and villages from the outside world. It is in this harsh country

FIGURE 21-2. Switzerland: landform regions.

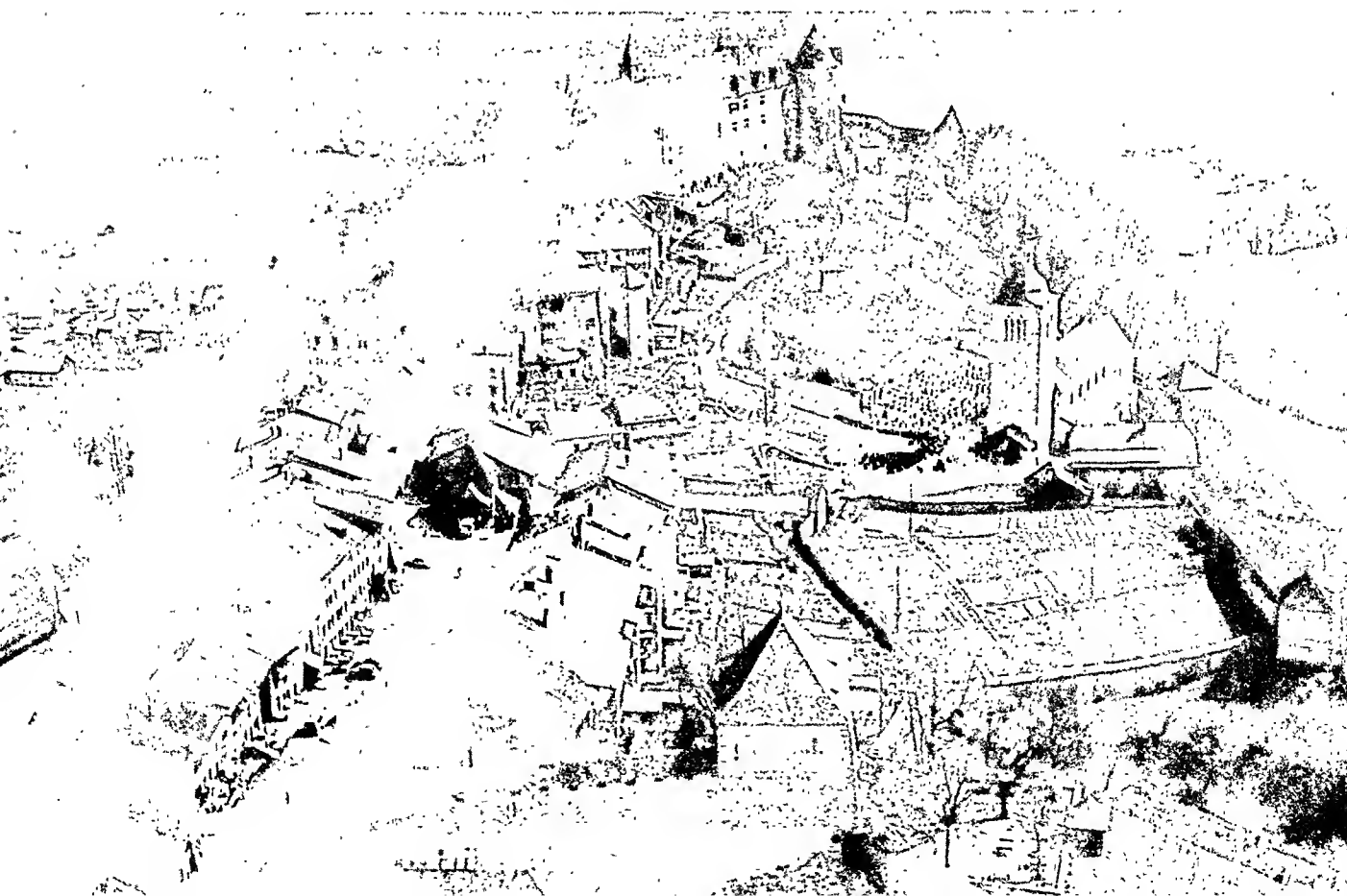


These rise within the mountain mass which lies to the southeast and flow northwestward toward the plateau. Some flow through lakes created by glacial deposition in the valleys, where they pass from the mountain zone on to the plateau. The abundant discharge of the silt-laden streams from the Alps has forced the main stream of the Aare over to the northwest, so that it now flows for a significant part of its course along the very foot of the Jura scarp. In the Aare Valley are the most extensive areas of level land in Switzerland, and here the proportion of land under crops is the greatest of any part of Switzerland. The climate of the plateau varies but is, on the whole, fairly dry for Switzerland. Winters are cold, but summers are warm and bright. Along the steep slope of the Jura Mountains, as they rise from the Aare, vines are grown, from whose grapes the neuchatel wine is made. In the lowlands of

Solothurn (Soleure) and Aargau fruit is grown and ripens well in the bright warm summer.

Toward the southwest the plateau contracts in width as the Alpine chain extends farther to the west. The plateau drops gently to the warm and sheltered shores of Lake Geneva, and a narrow strip of low ground extends along the Jura foot and encloses the lower end of the lake, where lies the town of Geneva (180,000). The central and northern parts of the plateau are made up of a series of valleys and ridges. The region is built of soft beds formed from the material eroded from the Alps as they were being folded, but the structure is in many places deeply buried beneath glacial and riverine deposits, which derive from the last glaciation. The terrain is hilly. The aspect is one of rolling hills which appear to have neither rhythm nor pattern. The higher and poorer slopes are often wooded. Crops—wheat, oats, rye, root

Gruyères, a very small and picturesque town, which has become a household word. It grew up as a walled town in the shadow of its castle, seen on the hilltop in the middle distances. (Swiss National Tourist Office.)



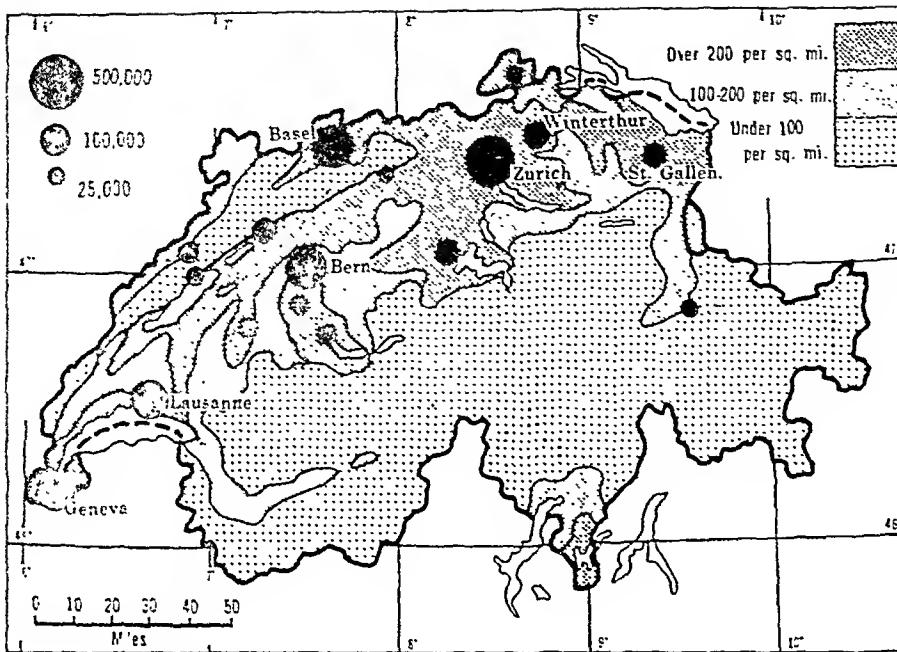


FIGURE 21-3. Switzerland: distribution of population and larger cities.

and forage crops, with here and there the grapevine and orchards—are grown, but agriculture is based mainly upon the dairy herds. The region does not supply its needs in agricultural produce but makes and exports large quantities of cheese, of which the Gruyère and Emmentaler are among the more familiar.

The plateau is by far the most densely populated area of Switzerland. Rural settlement is largely in compact and closely spaced villages. Small towns, many of them retaining their medieval walls and towers and the domestic buildings upon which has been lavished for centuries the artistic skill of their inhabitants, are spread over the land. Most of these are rural in their functions, serving as market centers; a few have some small specialized industry, such as cloth weaving, embroidery, or lace making. Some are of more than local importance. Bern (*F*: Berne, 167,000), the federal capital, was established within a meander of the deeply incised Aare. It preserved its old charm, while assuming the duties of a modern capital. Zurich (441,000) is its neighbor, 60 miles to the northeast. It lies on both shores of the river Limmat where it leaves the lake of Zurich. The ancient city lies close to the river, but the modern,

industrial suburbs extend over the hills to east and west. The town is one of the most impressive in Europe; in its large public buildings it combines the massiveness and the strength of the German with the lightness and grace of the French. Although the town is wholly German in speech, it seems to display the finer characteristics of the two peoples who constitute the greater part of the population of Switzerland. Zurich is a center of the cotton and silk industry and has also an important mechanical- and electrical-engineering industry.

Lucerne, which lies between Bern and Zurich at the northern outlet of Lake Lucerne, is smaller, has no significant industries, and is dependent on the tourist traffic. Toward the northeast of the plateau are a number of small towns in which are carried on the engineering and textile industries. St. Gallen is a center for the cotton, lace, and embroidery industries, Winterthur has cotton and engineering, and Schaffhausen, situated close to the falls of the Rhine from which it derives some of its power, has chemical industries. There are fewer towns in the more hilly southwest part of the plateau. Fribourg (*G*: Freiburg), a small textile-producing town, lies in a situation very similar

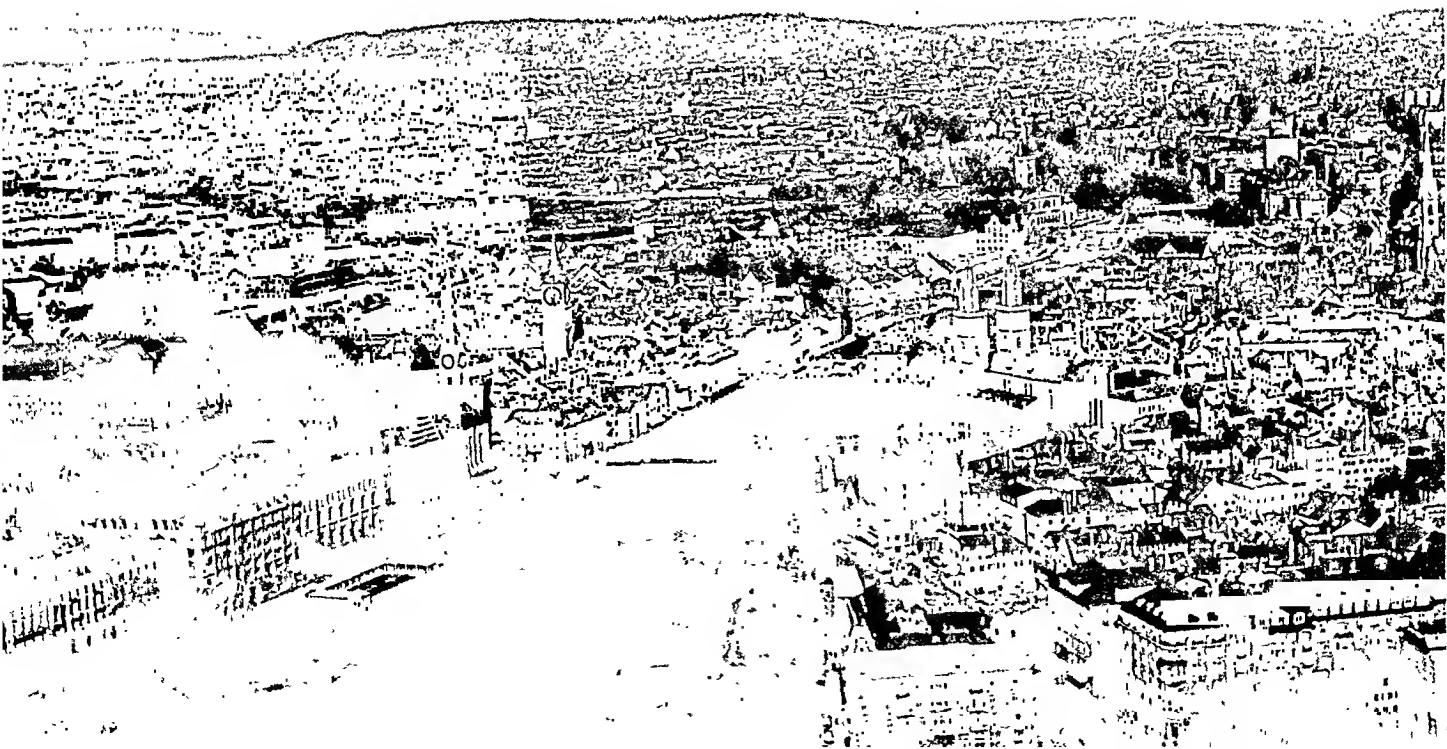
to that of Bern, within a meander of the river Saane. Lausanne (131,000) lies upon a hill above the northern shore of Lake Geneva. A castle and cathedral were built here, and the town grew around them, extending gradually down the hill to Ouchy, 2 miles away on the water's edge. Lausanne is a tourist resort; it lacks the charm of the cities of German Switzerland but has a situation of great beauty, facing across the blue lake to the mountains of Chablais and the Mont Blanc Massif. Geneva lies, like Zürich and Lucerne, at the outlet of a lake. It is French in speech, is linked with the rest of Switzerland only by the narrow strip of land along the northern shore of the lake, and entered the confederation as recently as 1815. The ancient core of the town lies on both banks of the Rhône as it leaves Lake Geneva. From the Middle Ages, it has been a focus of routes and an important commercial center. It has since been a center of international activities and

a home for political and religious refugees. Here Calvin, who had fled from France, carried through his Reformation; here were established the headquarters of such societies as the International Red Cross; and here came, in 1919, the League of Nations. Geneva, in the neutral state of Switzerland, is one of the most cosmopolitan cities in Europe.

Alps. The Alps cover considerably more than half of Switzerland and are commonly regarded as its most beautiful region. They contain, however, little more than a quarter of the population of Switzerland and a very small proportion of the country's industrial activity. Apart from agriculture, the most important occupation of this region is the maintenance of hotels and of other facilities and amenities for tourists.

The Swiss Alps are part of a mountain range which begins on the Mediterranean coast of

Zurich lies on both sides of the river Limmat, where it leaves Lake Zurich. This photograph was taken looking northwestward down the Limmat toward the Swiss Plateau. (Swissair.)





Bern, the federal capital, lies on a low plateau within an elongated meander of the river Aare. The spire of the cathedral is seen in the middle distance, and to the right the dome of the Swiss legislative building. (Swiss National Tourist Office.)

France and fades out on the borders of the Hungarian Plain. They continue the divisions of the French Alps that we have already examined. The Swiss Alps are divided longitudinally by the valleys of the upper Rhône and the Vorder Rhine into a northwestern chain, which continues the line of the limestone Alps of Chablais and Chartreuse, and a southeastern, which stretches east from Mont Blanc. Between is the broad Rhône-Rhine trench.

Oberland-Tödi. The Bernese Oberland and Tödi chain forms a distinct physical unit, clearly defined by the longitudinal and transverse sections of the Rhône and Rhine. The southwestern half of the range is known as the Bernese Oberland. The range drops steeply on the south to the Rhône Valley and on this side is drained by a series of short valleys. The range has the most extensive permanent ice field in the Alpine chain, and a

number of glaciers, notably the Great Aletsch, extend down into the valleys which drain the region. On the northwest, the surface drops more gently toward the Swiss Plateau. The valleys of the north-flowing rivers are longer and frequently deeper and more spectacular than those on the southeast. They contain a number of tourist resorts, which include Grindelwald and Kandersteg. The Oberland rises eastward to a rugged and snow-capped massif of great beauty. The Breithorn, Jungfrau (13,668 feet), Mönch, Eiger, and Schreckhorn, with the Finsteraarhorn (14,026 feet) lying a short distance to the southwest of the main chain, raise their sharp, pointed summits, creating an impassable barrier to transportation and a great attraction to tourist and climber. On the east the Oberland ends abruptly as it drops to the Haslital, the valley of the upper Aare. The Aare rises on the northern slope of the Grimsel Pass, one of the few significant crossings of the whole range.

Flowing past the resort town of Meiringen, it enters the lake of Brienz and then the lake of Thun, which occupy one of the several longitudinal valleys of the Oberland. From Thun it flows northward to the plateau, to Bern and the Rhine. Between the two lakes and on an alluvial fan which separates them is the resort town of Interlaken. The river Reuss rises to the south of the Oberland-Tödi chain, crosses the range in the Schöllenen Gorge below Andermatt, and flows northward through the valley of Uri to Lake Lucerne.

The Tödi chain stretches, continuous and unbroken, from the gorge of the Reuss to the broader

transverse valley of the Rhine. It is lower than the Oberland, and the Tödi itself reaches only 11,887 feet. At its eastern end is the massif of the Santis (8,216 feet), which overlooks the Rhine and sends spurs northward to Lake Constance.

The Alpine region is both agricultural and pastoral. The valleys on the north are broad and gentle enough for crop cultivation. Wheat, oats, rye, and fodder crops are grown, but in most parts, agriculture centers in the herds of cattle which are wintered in the barns attached to the farmsteads in the valleys or scattered through the meads, and spend the summers on high pastures. But agriculture is difficult. The winter climate

An alpine valley in the Bernese Oberland. Note the lower slopes, cleared for grazing and thinly settled; the upper slopes covered with coniferous forest; and above, bare rock, snow, and ice. (Swissair.)



is severe, and in summer the warmth and sunshine are not always sufficient to ripen crops or even to dry hay. The preparation of winter fodder for the cattle demands great care and labor. No grass is allowed to go uncut, and hay is fastened to stakes or folded over strings to enable it to dry more easily out of contact with the damp ground.

The villages lie in the valley bottoms. On the high alps are small and primitive chalets, the summer houses of the herdsmen, where they milk the cattle and make cheese while crops are being taken from the fields in the valleys. The distribution of the village settlements is strongly influenced by insolation. In a region as mountainous as this, shadows are long and parts of most valleys are in the shade for a large part of each day. The Swiss distinguished between the *Sonnenseite* (sunny side) and *Schattenseite* (shady side) of the valley, and their settlements are often carefully located to obtain as much sunshine as possible.

The Rhône-Rhine trench is one of the most strongly marked features on the relief map of Switzerland. It is straight and continuous for some 140 miles from the bend of the Rhône at Martigny to the Rhine below Chur. For over a hundred miles the valley has a broad, flat floor, and the mountains to the north and south lie back from it. Villages and small towns lie at intervals along its course. Sion (G: Sitten) and Brig (Brigue) in the Rhône Valley and Chur in the Rhine are locally important.

Between the source of the Rhône and that of the Vorder Rhine, about 15 miles away, the longitudinal valley is drained by the Reuss, which breaks northward through the Schöllenen Gorge. This short tract, the Urserental, is bounded on the west by the Furka Pass (7,976 feet) and on the east by the Oberalp Pass (6,719 feet). Southward is the Saint Gotthard Pass, the most famous and historically the most important of all the passes of the Swiss Alps.

Below Chur the Rhine bends northward, and its plain widens as it approaches Lake Constance. In its valley lies the principality of Liechtenstein, a small, independent state which is in customs union with Switzerland and always acts in close harmony with the Swiss Confederation.

The Pennine, Lepontine, and Albula Alps. The Pennine Alps continue the general direction of the Mont Blanc Massif, from which they are separated by the Great Saint Bernard Pass. Their high and continuous crestline scarcely drops below 12,000 feet, and above this rise the Matterhorn (14,705 feet) and Monte Rosa (15,217 feet). The flanks of this broad mass are furrowed by deep valleys, in each of which the mountaineers live an almost isolated and self-contained life. Longest and broadest of these is the Zermatt Valley, which reaches from the Monte Rosa northward to the Rhône.

East of the Pennine Alps is the Simplon Pass (6,584 feet), and beyond this the lower Lepontine range. The almost impassable crest of the Pennine Alps forms the boundary between Switzerland and Italy. The Lepontine range is more broken; there are a number of passes, in addition to the Saint Gotthard, which present no difficulty. Between the Nufenen and the Saint Bernardino Passes the Swiss in the later Middle Ages pressed southward toward the Lombardy Plain. They lost part of their conquests but have retained the Italian-speaking canton of Ticino.

The eastern parts of the Lepontine Alps are drained by the Vorder and Hinter Rhine, and farther to the east the Albula Alps form the divide between the Rhine drainage and that of the Danube. The Engadine is the upper valley of the Austrian river Inn. It takes a direct course, roughly parallel with that of the Rhine, from the Italian to the Austrian frontier. At the source of the Inn the low and easy Maloja Pass gives direct access to Italy, and a number of passes lead from the Engadine across the Albula Alps to the Rhine Valley. The Engadine is easily accessible and, unlike the Rhône-Rhine trench, has long been a highway for trade and marching armies. It is now one of the most frequented of the Swiss resort areas. Here an Italian influence shows itself in the architectural styles, and much of the beauty of the farmsteads and houses of the Engadine is due to the way in which the Italian style, like the French, gives lightness and grace to the German.

Only in the canton of Ticino does Switzerland include any appreciable part of the drainage basin

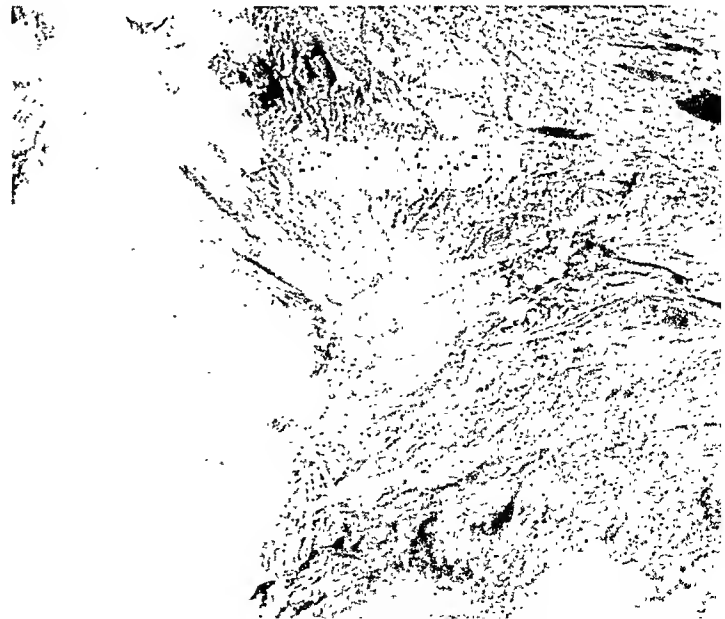
of the Italian Po. The canton embraces the Ticino Valley above Lake Maggiore, known as the "Val Leventina," a small part of the lake itself, and much of Lake Lugano. It is, in comparison with Switzerland to the north of the Pennine and Lepontine Alps, a region of warmth and sunshine, of the grapevine, and of southern fruits. The winters are nevertheless cold, and the soils of no high fertility. The drought of summer restricts the growth of grass, and pastoral activities are of much smaller importance than to the north of the Alps. The region is heavily dependent on the tourist traffic, which is attracted by its beauty. Locarno and Lugano are the most important lake-side resorts. The region is politically Swiss, but in all other respects it is Italian. Language, customs, and styles of architecture are those of Italy.

ECONOMIC DEVELOPMENT

In 1962 Switzerland was estimated to have a population of 5,660,000 in a country of 15,940 square miles, of which little over a quarter is under cultivation. Forty-two per cent of the area is fit only for grazing, and forests cover about a quarter. The roughness of the terrain, combined with the severity of the winter climate, has always made it difficult for the Swiss to support themselves in their small country. In the past they served in the armies of other countries. It was

a Swiss Guard that defended the French King Louis XVI during the French Revolution, and at the Vatican there is still a guard of Swiss, dressed in their traditional sixteenth-century costume. The problem of overpopulation has been solved in modern times by industrialization, but agriculture remains of considerable importance, engaging about 26 per cent of the employed population. Grain crops—wheat, oats, barley, and rye—are grown, but in quantities far from adequate to support the population. There was an import of grain foods amounting to over 40 per cent of the total consumption before 1939, and imports have tended to increase rather than to diminish. On the other hand, dairy produce, in particular cheese, is produced in excess of Swiss demands and is exported. Most of the agricultural activity is in the central plateau region and in the broader Alpine valleys.

Switzerland has become primarily an industrial country. Manufacturing industries engage about 40 per cent of the employed population. Switzerland lacks mineral fuel. Coal and oil have to be imported and are, in consequence, relatively costly. Switzerland depends heavily on hydroelectric power, which its steep swift streams are well suited to produce. There are few rivers that are not harnessed in at least one or two places and made to generate current. The production of electric power is restricted in the winter months, when,



The Saint Gotthard Pass is one of the most important, as well as one of the most spectacular, alpine passes. The road climbs the northern approach by a relatively gentle ascent, but beyond the summit plunges into the Ticino Valley by a series of immense zigzags. (Aerofilms.)

owing to the frost, the streams flow less readily, and at this time the hydroelectric power has to be supplemented by thermoelectric, generated with the help of imported coal.

Many Swiss industries derive from medieval origins in the town and village crafts. These have been reinforced by numerous groups of refugees, who have brought their own specialized trades. Electric power has been applied to ancient craft industries, the watches of the Jura, the woollens of Fribourg, the cotton of Winterthur, the lace and embroidery of Saint Gallen. Some of these make little use of power, remaining predominantly handicrafts. The mechanical- and electrical-engineering industries are of a more recent origin. They have grown up in Zurich and Basel as well as in smaller centers such as Winterthur. They owe much to the encouragement given by the development and use of electrical power, but the kinds of mechanical engineering are also a consequence of the absence in Switzerland of the raw materials of the industry. Switzerland engages in the finishing industries. It imports pig iron, which it works up. A great deal of skill goes to the fashioning of only a small volume of metal, so that the cost of the imported raw material constitutes only a minute proportion of the total cost of the finished article.

A consequence of the use of electric power is that in Switzerland there are few factory chimneys and no black and smoke-stained industrial areas. The factories are scattered among the towns and villages, supplied with power by an overhead cable and with materials by motor vehicles or by the railway. The northern part of Switzerland, the cantons of Basel, Zurich, Appenzell, and Saint Gallen, is the most industrialized, but there are few cantons and few towns where some manufacturing industry is not carried on.

Transportation has always been difficult in a country as mountainous as Switzerland. This, however, does not mean that it is not important. It has been the volume of traffic crossing the passes from the Middle Ages to the present that has encouraged the building of the bridges, roads, railways, and tunnels. Basel, Zurich, and Bern are each the center of a railroad network which is spread thickly over the plateau. Even the Jura

is crossed in several places, and the railways follow many of its narrow valleys. The Alps are penetrated by the valleys of the Rhône and Rhine, which are joined by a light railway that tunnels under both the Oberalp and Furka Passes. Little movement, however, takes place *along* this trough; transport rather moves *across* it. The Simplon Tunnel through the Lepontine Alps and the Lötschberg Tunnel through the Bernese Oberland shorten the route from Italy to the plateau. The St. Gotthard Tunnel has the advantage of allowing the whole Alpine range to be crossed by only one tunnel. The track climbs the steep Reuss Valley, making use of circular tunnels in the hillside to hasten its ascent. Near the lower end of the gorge of the Reuss it enters its tunnel to emerge 10 miles to the south at Airolo in the Val Leventina. From the upper Rhine Valley railways ascend the valleys of the Graubünden, and one crosses the Albula into the Engadine. The railway net, however adequate on the plateau and in the Jura, has in the Alps to be supplemented by a system of *postes*, small buses which cross the passes and carry tourists, mail, and baggage to places which the railways could never approach. The higher passes are closed, however, for periods which vary, from one pass to another and from one year to the next, from 5 months to as many as 8.

Switzerland's geographical position, between France, Germany, Austria, and Italy, together with the stability and good government that have characterized the country, have combined to give it an importance in the financial world akin to that of Great Britain. Switzerland is a center for banking and insurance. Its currency, the Swiss franc, is as highly respected as the American dollar and Swiss banks are often used as repository for their money by nationals of many countries.

Like Sweden, Switzerland has avoided the commitments of war and the entanglement of alliances. She is recognized as a neutral and has undertaken not to take sides in international disputes. Switzerland has preserved her neutrality inviolate from the time of Napoleon until today. She has, nevertheless, a small army and careful plans for national defense. These include the defense of the "national redoubt," a strategic term

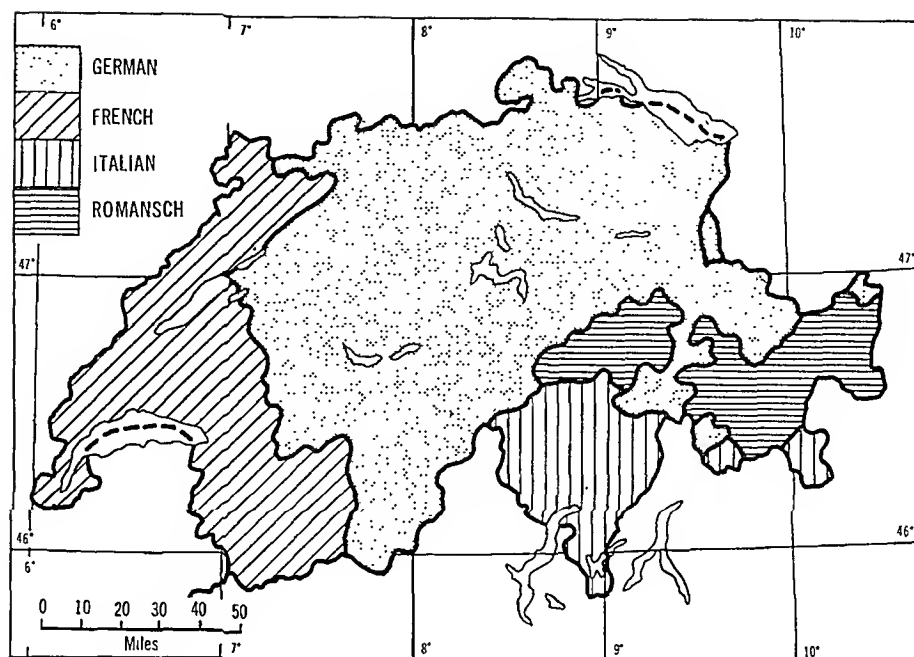


FIGURE 21-4. Switzerland: distribution of the four official languages.

for the Rhône-Rhine trench, the approaches to which from Lake Geneva, Lake Lucerne, and Lake Constance are strongly fortified.

Switzerland has achieved a high standard of living on the basis of a large foreign trade, by entertaining tourists, and by performing financial and actuarial services for other nations. The flow of trade, visitors, and business is cut off in war. In the years from 1940 to 1945 Switzerland was faced with the loss of almost all these assets. A plan was devised for Swiss agriculture, and "in spite of the serious obstacles of poor soil, shortage of labor, machinery and fertilizers and adverse climatic conditions, the wholehearted support of the farmers and industry enabled the plan to be carried out with a success" which greatly exceeded expectations. The proportion of total food-stuffs produced at home rose from 53 per cent in 1938 to 82 per cent in 1944. Certain small coal deposits were opened up and contributed in some degree to supply the deficiency left by the failure of Germany. The gearing down of Swiss agriculture to the postwar situation was not easy but has been achieved.

Switzerland is one of the few European examples of a federal state—the others being

West Germany, Yugoslavia, and the Soviet Union. It is, however, as its name "Confederation" indicates, a very loose federation, with relatively great power resting with the individual cantons, and relatively little at the center. It was built up, like the United States, by the addition of fresh states, or cantons, to the original nucleus, the forest cantons of Uri, Schwyz, Unterwalden, and Nidwalden. The 25 cantons have a high degree of independence both of one another and of the federal government which meets in Bern. At least one of the cantons perpetuates the ancient democratic practice of having a parliament consisting of all adult males meeting out of doors, not unlike the governments of ancient Greece. On vital issues affecting the whole country, resort is had to the plebiscite, in which the whole adult male population participates.

The value of Swiss trade in proportion to her population is one of the highest in Europe. Much of the oil and fat, almost two-thirds of the cereal, even larger percentages of the sugar and tobacco, and all the coffee and cocoa are imported. All the solid fuel is also imported, the coal chiefly from Germany, petroleum and heavy oil from overseas. Hardwoods and the materials of the

textile and metallurgical industries are also imported. Switzerland exports textiles, machinery, diesel engines, watches, and electrical equipment, for each of which she has a high reputation. She supplements her income by her tourist industry,

one of the largest and best organized in Europe, and also by her international banking and insurance business. It is the profit from these transactions that allows Switzerland to import so much more than she exports.

TABLE 21-1. Chief Elements in Switzerland's Foreign Trade, 1962 (In Millions of Francs)

Item	Imports	Exports
Food	1,710.8	403.5
Beverages and tobacco	282.9	83.2
Crude materials, inedible	1,016.3	182.5
Mineral fuels	869.3	4.6
Animal and vegetable oils and fats	70.4	8.8
Chemicals	1,061.4	1,799.3
Manufactured goods	3,149.5	1,656.5
Machinery and transport equipment	3,457.4	2,995.5
Miscellaneous manufactured articles	1,315.6	2,332.0
Miscellaneous transactions and commodities	41.0	47.1
Total	12,974.7	9,513.1

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1963.

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Austria

Austria grew up in the Middle Ages as a province of Germany. It was an easterly outpost, the Ostmark, or eastern march, whose purpose was to protect Germany and western Europe from invasion by way of the Danube Valley. For many centuries Austria as a whole and its capital Vienna (G: Wien) in particular were the bastions of Western civilization. We cannot say that in this their role has yet been terminated. The Turks, who from the fourteenth century onward spread over southeastern Europe, on more than one occasion reached and besieged the city of Vienna. After their final repulse in 1683, the Austrian forces followed them in their retreat across the Hungarian Plain. In this way the Austrians built up an empire which stretched down the Danube Valley and embraced not only Hungary but parts of present-day Romania and Yugoslavia. In the sixteenth century the Hapsburgs, dukes of Austria, became kings of Bohemia and subsequently made the Bohemian Crown hereditary in their family. Bohemia was thus absorbed into the Austrian lands. Austrian occupation of Hungary brought with it control over the Slovaks of the Carpathians and many of the Yugoslavs as well as the mixed population of Transylvania. Even parts of southern Poland were added to the Austrian empire in the eighteenth century.

This great empire broke up in 1918, and from its fragments the so-called "Succession States" were formed. Austria was itself reduced to a small territory about the size of Maine. Most of its area is mountainous and of little agricultural value. Its area of 32,375 square miles contained about 7,074,000 inhabitants in 1961. The former empire of Austria-Hungary had contained at the time of its dissolution about 54 million.

Austria extends from the eastern border of Switzerland to the Hungarian Plain, a distance of 400 miles. At most the country is 160 miles from north to south. Its most westerly province, Vorarlberg, lies in the drainage basin of the Rhine. The Danube flows through northern Austria, and all parts except the extreme west of the country are drained by the Danube or its tributaries. Much of the southern boundary of Austria follows the divide between the northward-flowing drainage of the Rhine and the Danube and the drainage basin of the Adriatic Sea.

Austria is now inhabited almost entirely by people of German speech, the only exception being the small group of Slovenes, one of the Yugoslav peoples, who inhabit the southernmost part of the province of Carinthia (Kärnten). Austria is essentially a rural and agricultural country, despite the fact that 23 per cent of its present population lives in the capital city of Vienna.

Vienna grew to be a city of over a million and a half when it was the capital city, the business and commercial center, and the focus of transport for the large Danubian empire of Austria. The breakup of this empire left Vienna with the outward manifestations of a great capital but without its functions. The problem of Vienna, of the "big head on little shoulders," has been one of the most serious in Austria since 1918. A partial solution might have been the absorption of Austria into Germany, but this was forbidden by the terms of the Treaty of Saint-Germain of 1920 between Austria and the Allied Powers. An attempt to bring about a customs union of Austria with Germany failed when it was held that this violated the Geneva Protocol of 1922, which required the maintenance of Austrian economic independence. It was not until 1938 that the

German government of Hitler annexed Austria. Austria was again separated from Germany in 1945 and, like Germany, was divided into four zones and occupied by the forces of the Allies of the Second World War. Like Berlin, the city of Vienna was divided into four sectors and administered jointly by the four powers. In 1955 Austria was evacuated by the Allied Forces and regained its sovereignty, on condition, however, of adopting a policy of strict neutrality in its foreign relations.

Austria consists of four contrasted physical regions. In the north is a small part of the Bohemian Massif. South of this is the narrow valley of the Danube. The Alps compose the greater part of the country, but on the east these end abruptly, and on this side Austria embraces a small strip of the Hungarian Plain.

THE BOHEMIAN REGION

The small Bohemian region is built of ancient crystalline rocks, similar to those which compose the highlands of Bohemia itself. The region is very hilly. Much of it rises to over 3,000 feet above sea level and is known to the Austrians as the "Waldviertel" (the wooded quarter). Agriculture is here devoted to the production of rye and potatoes. To the east the relief becomes more gentle and the altitude lower, and the ancient rocks sink beneath younger, softer, and more fertile deposits. This is the Weinviertel (the wine-producing quarter), where are large and prosperous villages. Wheat and the grapevine replace the hardy crops of the sour Waldviertel soil.

THE DANUBE VALLEY

The Danube Valley is shut in on the north and south by hills. In parts its banks rise steeply from the river, rather in the manner of the gorge of the Rhine. Navigation is far from easy in the swirling waters of the river, and with the exception of Linz (196,000)¹ there are no cities of large

¹ The population in 1961 is given for all cities of over 100,000.

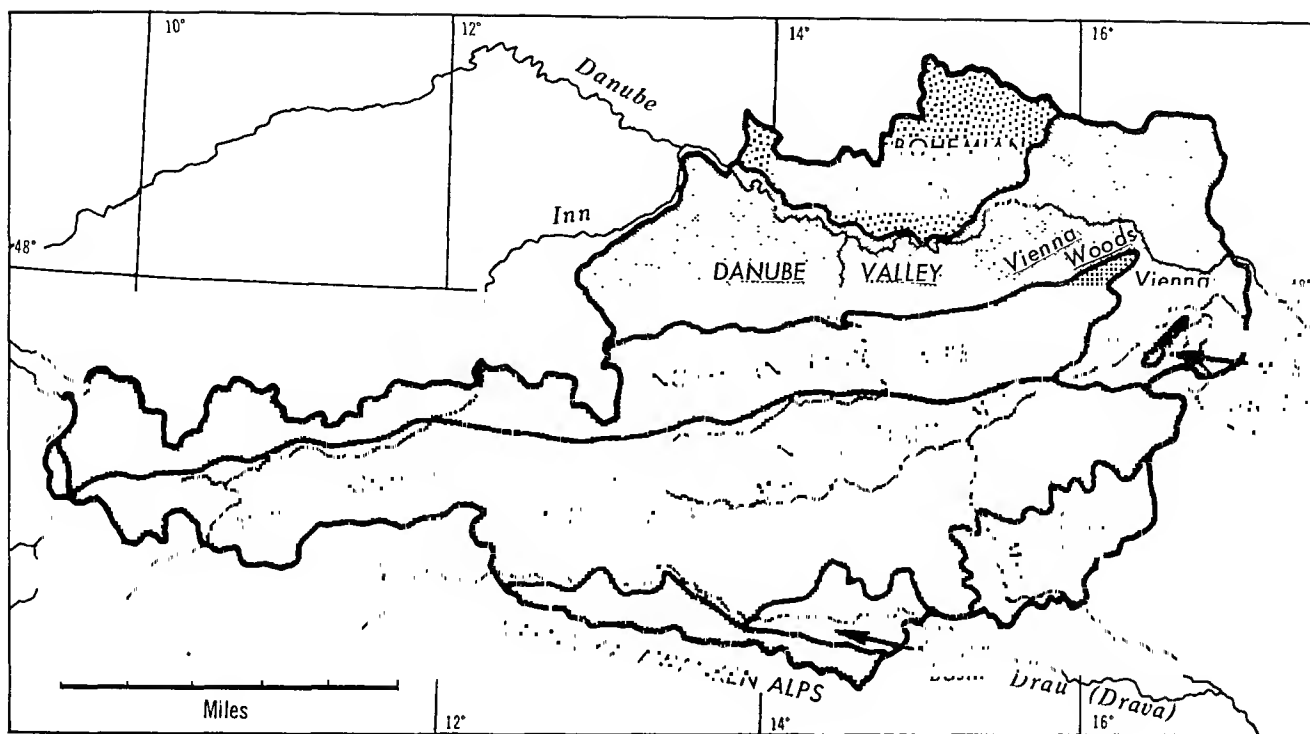


FIGURE 22-1. Austria: landform regions.

The Vienna Woods (G: Wienerwald) is in reality a spur of the Alpine chain which reaches northeast to the Danube. In this photograph the vine-covered hills of the Wienerwald are seen to the left beyond the swift-flowing river. To the right is the small town of Klosterneuburg. (Austrian Information Service.)



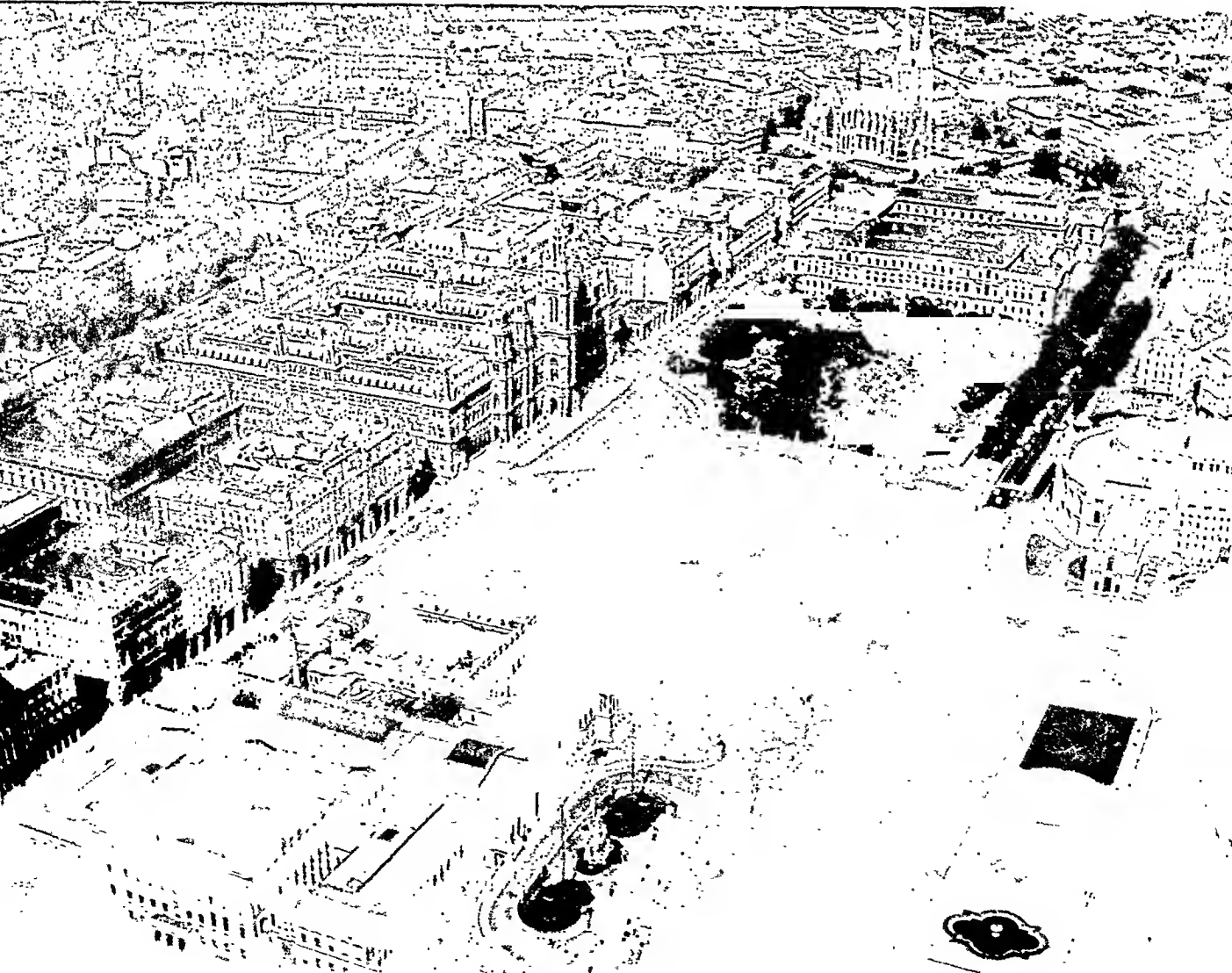
size and importance on its banks in this section of the valley. Below Krems the valley widens and the hills draw back on each side.

Despite the difficulties which the Danube presents to navigation, this region has been an avenue of human movement throughout history. It is divisible into the valley above and the valley below Krems. The many hills and the narrow valleys above Krems have hindered but never stopped transportation. This region is fairly fertile. Agriculture is profitable, and this is one of the more densely peopled areas of Austria. There are many small towns and large villages, which together

give an appearance of rural prosperity and well-being.

Below Krems the valley of the Danube widens to a plain bordered on all sides by low and rounded hills, often cultivated to their summits. Its young and soft rocks have been dusted with loess, and the area is well settled and well cultivated. This is the most valuable agricultural region of Austria. To the northeast the plain is continuous with the plain of Moravia (see page 327), and it extends southward to the Wiener Neustadt, where the mountains begin to rise. On the east it is bordered by a hilly ridge known as the Leitha

Vienna developed as the capital city of a vast empire, and many of its buildings are consistent with its former role. The photograph shows part of the Ring, the series of parks and broad avenues that replaces the city wall. In the photograph are, from left to right, the Parliament building, city hall, the university, and the Town Theatre (Burgtheater). (Austrian Information Service.)



Gebirge, east of which begins the Hungarian Plain.

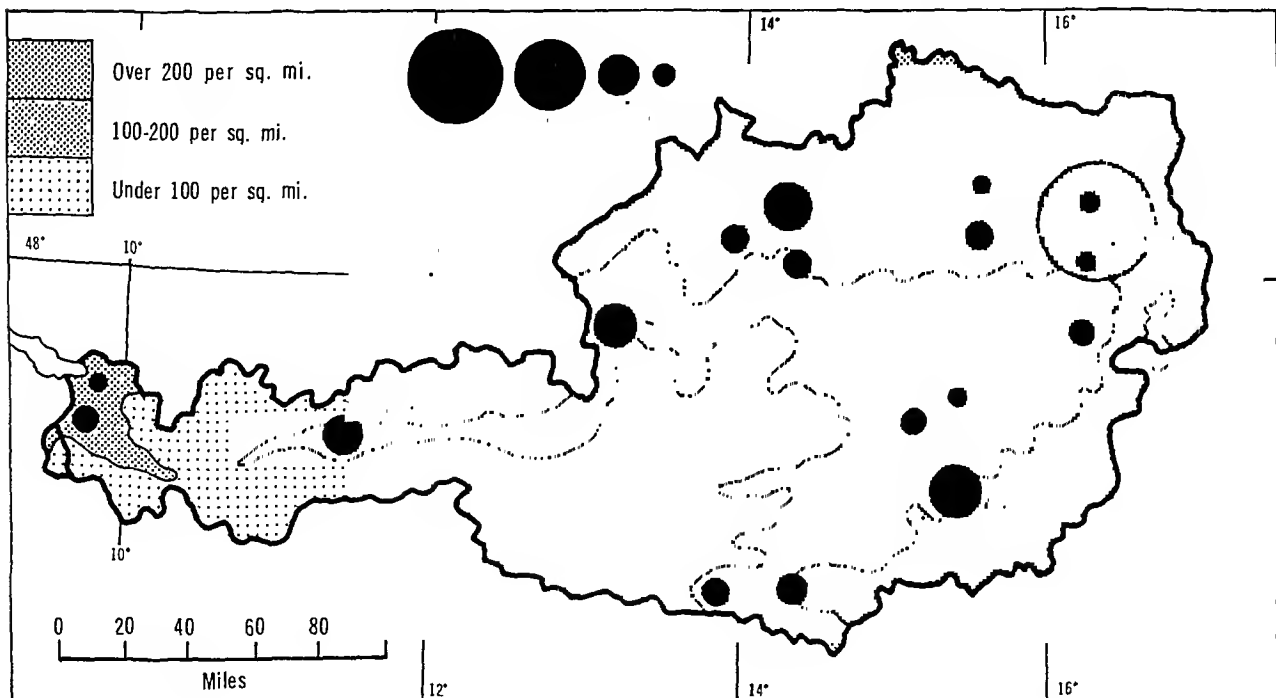
This plain of lower Austria may be described as the crossroads of Europe, and here, at the crossing, lies the city of Vienna (1,628,000). From the south the easiest crossings of the Alps converge on the city, and to the north of the city lies an easy routeway through the Moravian Gate (see Fig. 24-1), which offers a low, level route from the Danube Valley to Silesia and Poland. East and west of Vienna is the routeway that follows the Danube Valley from Germany to Hungary and the Balkan peninsula.

In this part of Europe cities have retained their fortress character longer than in less disturbed regions to the west, and Vienna is the fortress-city par excellence. Founded in the Middle Ages as the capital of a "Mark," or frontier state, it has for many centuries fulfilled its function of protecting south Germany from invasion. Vienna was built on a terrace above the river Danube. To the east, its exposed side, it was protected by the marshes of the river. The early dukes of Austria made the city their capital. It outgrew

its earliest medieval walls and then its later line of defense, which was taken down and replaced by the Ringstrasse, a boulevard in horseshoe plan, along which were built many of the most splendid buildings of Vienna. Much of this building was done in the eighteenth century in the ornate style known as "baroque." Vienna and Prague are the chief European homes of this style, which reflects so completely the grace, the refinement, and the artificiality of pre-Revolutionary Europe. This was the Vienna of Mozart and Beethoven. The Vienna of romance belongs to the nineteenth century, when the Austrian emperors held their court at the Schönbrunn and the city was the prosperous capital of a large and expanding empire. Vienna is now the largest—almost the only—industrial city of Austria.

The industries of Vienna are chiefly those which call for much skill and finesse and relatively little raw material. Its former role of an imperial capital encouraged the production of luxury goods. Mechanical engineering, the production of fine metalwork, woodworking, electrical engineering, and the textile and clothing industries are the most

FIGURE 22-2. Austria: distribution of population and larger cities.



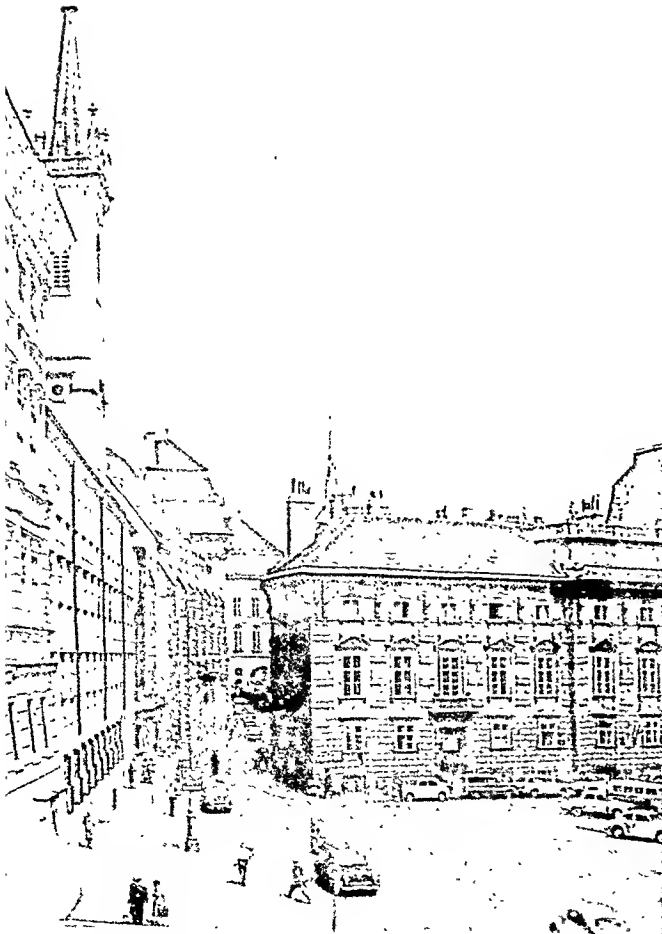
important. Vienna is also a university city and an important center of European art and culture. South of Vienna are a number of small industrial towns, which carry on engineering, textile, and woodworking industries. Largest of these is Wiener Neustadt.

THE ALPS

The Alps occupy two-thirds of Austria. They continue eastward the main features of the Alps of Switzerland, but in Austria the mountain mass broadens and becomes somewhat lower in altitude. Toward the east the sharp glacial forms disappear and the rounded hills sink toward the Hungarian Plain. The highest and most inaccessible area of the Austrian Alps is the Hohe Tauern, which continues the high mountains of the Engadine district of Switzerland. The Hohe Tauern consists of hard crystalline rocks that have been eroded by ice into sharp and striking forms. There are no breaks in the continuity of the range, and a motor road, the

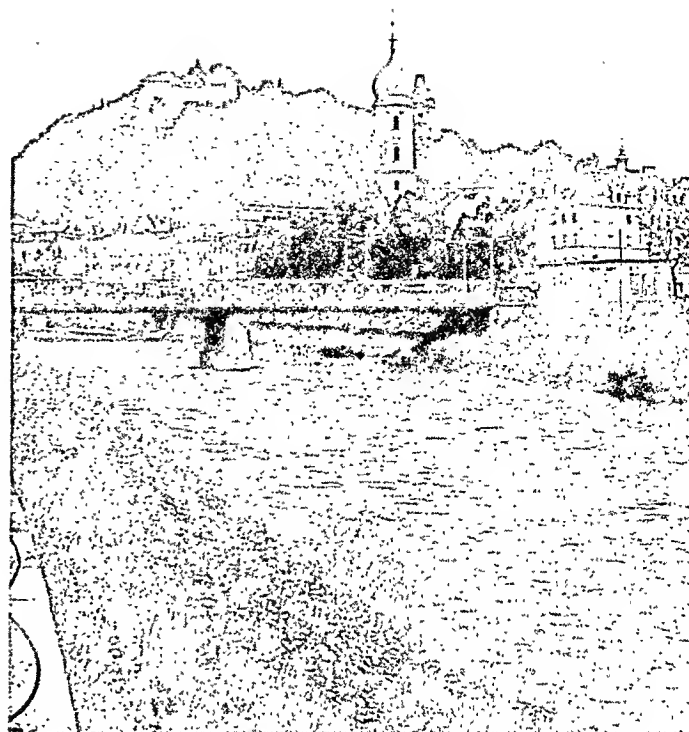
Gross Glockner Strasse, constructed solely for the entertainment of tourists, crosses the range at a height of 8,212 feet. Its crestline is almost continuous, rarely dropping below 8,000 feet. The Brenner Pass at 4,494 feet is the lowest crossing. The Hohe Tauern is continued eastward as the Nieder Tauern. This is lower, but still serves as an effective barrier to communications. Much of this region is inaccessible to the ordinary tourist, and it has not in general been commercialized like the Swiss Alps. Towns and hotels are smaller and less frequent. Rural life is primitive. Many of the remote valleys are almost self-sufficing and have little contact with the outside world.

This central core of the Austrian Alps is limited on north and south by clearly marked depressions, eroded by rivers along lines of geological weakness. To the north the rivers Inn, Salzach, and Enns occupy differing parts of such a depression, which is in fact continuous from Switzerland to near Vienna, with only a low pass to separate the tract occupied by one river from



The impressive public buildings of Vienna make it one of the most distinguished cities in Europe. This photograph was taken within the Ring. On the left is the Hofburg, the former city residence of the emperors. (N. J. G. Pounds.)

Graz, beside the swift-flowing Mur, is the second largest city of Austria. It grew up on the edge of the Pannonian Plain and in the shadow of the castle, whose remains are still to be seen on the hill above the city. (N. J. G. Pounds.)



that occupied by the next. On the south the river Drau occupies a similar depression.

In the extreme west of Austria is the small province of Vorarlberg. It lies in the Rhine Valley, and its communications with the rest of Austria are only by the Arlberg Pass and the rail tunnel that has been cut beneath the pass. This is the least populous of the Austrian provinces. Its bonds of sentiment and loyalty to the Austrian State are loose, and after the First World War its population even appealed, though unsuccessfully, for admission to the Swiss Confederation.

On the borders of Vorarlberg is the little principality of Liechtenstein, a small and independent state of only 62 square miles and a population of 13,000, one of the few, quaint, feudal survivors in modern Europe (see page 292).

To the east, where the Alps give way to high but rounded hills, the land is at once more accessible and more valuable. The rivers Mur and Mürz provide routes through the region, and the Semmering Pass, which at 3,215 feet is one of the lowest and easiest of Alpine crossings, provides a routeway from the Mürz Valley into the Vienna Basin. Much of this area is forested, and agriculture is of some importance in the valleys, which

are here wider as well as lower than those farther to the west. This area was once famous for its iron industry. The ancient charcoal iron industry has died out, but the iron ore of Eisenerz is still worked, and is smelted at Donawitz, only 16 miles away. There are several steel and engineering works in the Mur and Mürz Valleys, perpetuating the ancient ironworking tradition. Graz (237,000), like Vienna, was a frontier city, lying where the eastern Alps drop down to the Hungarian Plain. But Graz has never rivaled Vienna in size or importance. The city lies where the river Mur leaves the mountains. Like Vienna it was a fortress city. It grew up around a steep-sided, castle-crowned rock, which rises beside the river and once guarded the approaches to the eastern Alps.

Between the Hohe Tauern and the Danube Valley is a series of short ranges, separated from one another by transverse valleys or easy passes. The region is picturesque, and its openness and accessibility have caused it to be more frequented than the forbidding Hohe Tauern. It contains such resorts as Innsbrück (101,000) and Salzburg (108,000). These are the only cities of considerable size in the area. They grew up on medieval trade routes, and Innsbruck commanded the northern

approach to the Brenner Pass. Their ease of access, combined with the beauty of their buildings and of their surrounding countryside, has brought tourists, and this in turn has led to their development as cultural and artistic centers.

The valley of the Drau, which bounds the Hohe Tauern on the south, widens as it nears the Hungarian Plain. In the basin of Klagenfurt its agricultural potentialities increase. Cereals, fodder crops, and fruit are grown, and the rural population is found living in large and compact villages like those of the richer parts of Germany. The chief cities of this region are Villach and Klagenfurt itself. Along the southern border of the Klagenfurt Basin lie the Karawanken Alps, a sharp, steep-sided range with snowy summits, which cut Austria off from Yugoslavia. A small number of Slovenes have settled here within the Klagenfurt Basin. But in general it has been the Germans who have crossed the mountains and settled to the south. South of the Brenner Pass, for example, Germans settled the Italian province of Alto Adige, or South Tyrol, which was part of Austria until it was lost to Italy in 1920.

EASTERN AUSTRIA

The remaining region of Austria is a very narrow strip of plain along the eastern border of the country where the Alps die away in low, rounded hills. Part of this region, which is known as the "Burgenland," was gained in 1921 from Hungary, and Hungarian cultural influences remain strong. It is a region of good agricultural land, and wheat, corn, and the grapevine are grown in the hot summers of the plain.

ECONOMIC DEVELOPMENT

Austria's large area of infertile and sparsely populated mountain territory greatly reduces its wealth. Agricultural conditions resemble those of Switzerland, but conditions are in general a little poorer in Austria. The severity of the winters in the Alps and the cool and often moist summers limit the crops to hardy cereals and fodder over much of the country. Even these are sometimes ripened or

matured with difficulty. Cattle and sheep are kept in large numbers, and transhumance, the seasonal movement of animals up and down the mountain-side, is practiced. The remoteness of much of the Austrian Alps and the general inadequacy of communications restrict the production of agricultural specialties, such as cheese, for export.

Crop farming is more important in the Danube Valley and on the margin of the Hungarian Plain, where the flat or rolling country, the lower rainfall, and greater sunshine are more suited to grain cultivation. In the Danube Valley forest is more extensive, and here animal husbandry is at least as important as crop farming. The grapevine is grown near Vienna, along the border of the Hungarian Plain on sunny, south-facing hill slopes, though this is close to the climatic margin for viticulture.

Rural conditions of settlement and housing resemble those of south Germany and Switzerland. In the mountain valleys, the villages are often grouped on the terraces of the valley side, leaving the small areas of better land on the valley floor for agricultural use. In the hilly and less-productive areas isolated settlements are common.

Austria is far from self-sufficing even in the agricultural products that the country is capable of producing. This is in part because of the requirements of its overgreat capital city. Before 1918, when Vienna served the needs of the whole Austro-Hungarian empire, the grain fields of Hungary supplied the Viennese market; now Austria has to export its manufactures and its services to pay for the necessary imports. Manufacturing industries are of slowly growing importance. Austria has some lignite but no large deposits of coal, and she is not well placed to import fuel from Germany. The extension and enlargement of Germany's canal system might facilitate the import of coal, but this undertaking is still not completed. Petroleum has long been produced. After the Second World War production was expanded at the Zistersdorf field, in the Danube Plain below Vienna, and in 1960 reached 2,448 million tons. It has, however, tended to drop in recent years. Meanwhile Austria has developed her resources in hydroelectric power. With the exception of the

In the first century A.D. iron ore was being mined and smelted in Noricum. Much of this ore came from the Erzberg, a mountain of high-grade ore, which is diminishing in size, but is still exploited. Its slopes are being cut away in giant steps. It lies close to the town of Eisenerz, part of which appears in the foreground, and is set amid the rugged Alps of Styria. (Austrian Information Service.)



Danube, all the Austrian rivers are small. Generating stations are numerous, but their size is restricted by the smallness of the streams on which they depend. The river Mur and some of the tributaries of the Danube are used intensively, but the river Danube itself, which has the greatest potentialities, has hitherto been developed least. No fewer than 15 generating stations are planned along the Austrian section of the river. Of these the dams, generators, and locks for riverboats to pass have been completed at Jochenstein, Ybbs-Persenberg, and Aschach. Electric power is now widely used in the factories and on the railways of Austria, encouraging here, as in Switzerland, the development of small and scattered units of factory production.

The mining of iron ore has been important for a very long time in Styria (*G.* Steiermark). At Eisenerz is a vast open iron-ore quarry which is slowly being driven into the mountainside, producing today about a million tons (iron content) a year. The metallurgical industry of Austria de-

rives from very early origins. It supplied the iron of Noricum, known to the Romans, but relied formerly on small quantities of good-quality ore and an abundance of charcoal. The large-scale smelting and steelmaking industry is a recent development and owes its origin, in part, to the strategic advantage of this relatively sheltered situation rather than to any other local advantages. There are today two modern iron- and steelworks, at Linz on the Danube, and at Donawitz, close to the ancient centers of manufacture in the mountains of Styria. The production of pig iron in the whole of Austria in 1962 was only 2,118,000 tons, and of steel, only 2,970,000.

The textile and clothing industry is carried on in many small centers in the mountains, but it is a survival of ancient domestic crafts and has little advantage here except the low wages demanded by the Austrian peasantry. In Vienna a clothing industry has grown up to supply the large local market.

Nearly 40 per cent of Austria is forested, and



The European Iron Age probably began in Austria nearly 3,000 years ago, and iron-working has never ceased to be important. The Linz works of the Austrian United Iron and Steel Company (VOEST) is one of the largest in the whole Danube basin. It lies beside the Danube (right foreground), and uses water as well as rail transportation for its raw materials and products. (*Austrian Information Service.*)

the timber-using industries are important. These include not only the direct use of wood in the manufacture of furniture, especially in Vienna, but also its use in the preparation of pulp and paper, carvings, implements, and tools.

A large part of the total industrial activity of Austria is carried on in Vienna itself. Graz is next in size and importance, though its population is little more than an eighth that of Vienna. All other cities are relatively small, and their manufacturing activities are relatively insignificant. Only Linz, Salzburg, and Innsbruck, in addition to these,

have a population of over 100,000, and of smaller cities, only Klagenfurt has more than 50,000. Many of the smaller towns survive only by virtue of their attraction to tourists; some are little more than groups of hotels.

Communications present serious difficulties in a country as mountainous as Austria. Routes from west to east are able to follow the Danube and the longitudinal valleys of the Alps, but movement in a north-to-south direction is difficult. The main mountain range is crossed by rail at the Brenner Pass and also by a railway tunnel under the Hohe

Tauern. The Semmering Pass, by which the valleys of southern Austria communicate with Vienna, is fortunately a low and easy route, followed by both road and rail. All transport has necessarily to be by road in the higher mountains, and some of the roads are closed by snow during the winter months.

Vienna, on the other hand, is a focus of railway routes which radiate up and down the Danube Valley and northward into Czechoslovakia. The Danube is the only really navigable river of Austria. It was formerly a very difficult river for navigation, with a branching and island-studded channel below Vienna. Much effort has gone to regulate its course, but river transport is still of only small importance and is fraught with dangers and difficulties in the form of shallows, shifting banks, and high water and swift current when the Alpine snows melt in spring and summer.

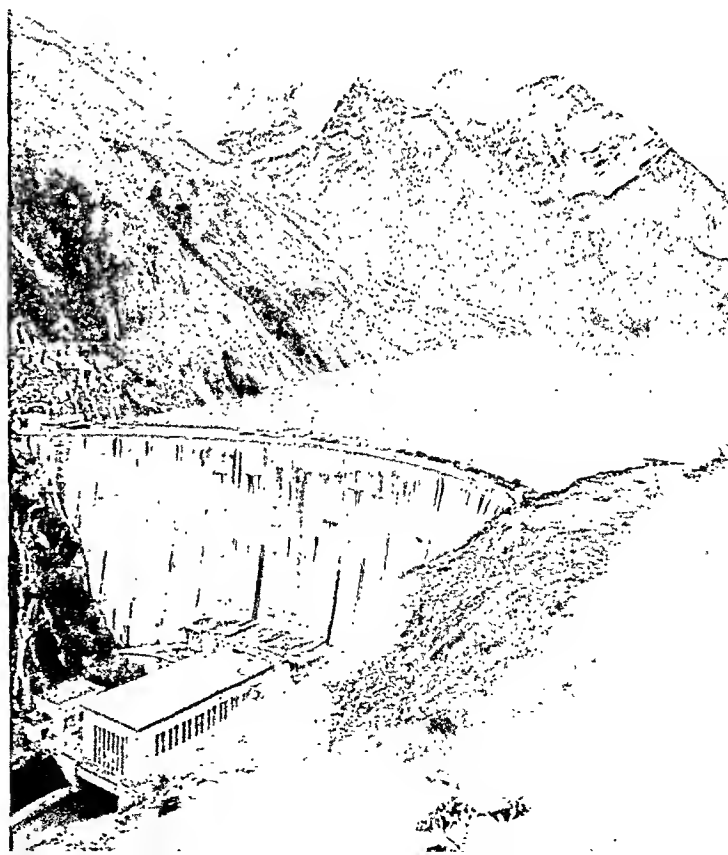
Austria is economically one of the weaker countries of Europe. Her liabilities in the shape of her overgrown capital and of the obligations that remain from her imperial past are offset by no commensurate potentialities. Her agricultural advantages are slight, and her agricultural equipment and methods are backward. Her manufacturing industries are relatively small, and their further extension is hindered by lack of resources. Exports are few, while the problem of provisioning Vienna alone necessitates a considerable import of foodstuffs. For this reason Austria encourages the tourist industry as much as she can; it is one of her very few assets. Table 22-1 shows how dependent is Austria on the import of foodstuffs, industrial raw materials, and manufactured goods. It also shows an unusually large discrepancy between the value of imports and that of exports.

Austria is poorly endowed with fuel resources, and the immense reserves of hydroelectric power become all the more important. The photograph shows part of the Kaprun project in the Hohe Tauern. (Austrian Information Service.)

TABLE 22-1. Chief Elements in Austria's Foreign Trade, 1962 (In Millions of Schillings)

Item	Imports	Exports
Food	4,977.7	1,586.6
Beverages and tobacco	543.5	37.3
Crude materials, inedible	4,238.6	5,114.3
Mineral fuels	3,807.2	782.7
Animal and vegetable oils and fats	485.3	10.3
Chemicals	3,178.5	998.8
Manufactured goods	7,964.6	14,409.0
Machinery and transport equipment	12,320.9	6,396.9
Miscellaneous manufactured articles	2,564.5	2,889.4
Miscellaneous transactions and commodities	267.4	625.1
Total	40,348.2	32,850.6

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1963.



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Poland

23

Poland lies in the North European Plain between the mountains of the Alpine system and the Baltic Sea. To the west is Germany; to the east, Russia; and between, the land lies flat and uninterrupted. There are no physical barriers, except rivers, lakes, and forest, to the movement of men, whether in small groups or in armies. Germans moved east and settled in Poland, and Poles settled in Russia. This open nature of the Polish Plain has rendered the country particularly liable to invasion. Its existence in modern times has been precarious, at the mercy of its stronger neighbors to east and west, Russia and Germany.

The state of Poland grew up in the Middle Ages to the west of the river Vistula (*P*: Wisła). During the following centuries this early Polish state lost territory in the west to the Germans but itself expanded to the east. In the sixteenth century the Polish state was merged with the grand duchy of Lithuania. The joint state reached eastward to beyond the river Dnieper. The political center of this enlarged state came to be the Polish city of Warsaw (*P*: Warszawa).

In the eighteenth century Poland was divided between her neighbors, made a short reappearance during the Napoleonic Wars, and reappeared

again in 1918. At the same time the Lithuanians revolted successfully against the Russians and re-established their independence, the western boundary of the new state was determined by the Allies and was made to conform as nearly as possible with the division between German and Polish peoples. The language frontier was far from clear. Germans and Poles dwelled intermixed with each other. The boundary that was ultimately demarcated was as fair as possible but satisfied neither side. It split the industrial region of upper Silesia and separated East Prussia from Germany by the so-called "Polish Corridor." On Poland's eastern border, however, it was beyond the power of the Allies to enforce a settlement between Poland and Russia, though the British government did suggest to the Polish that the line which came to be known as the "Curzon Line" might be accepted as a boundary. Poland refused. She was successful in the campaign against Russia of 1920 and by the terms of her peace treaty with Russia secured much more extensive territories in the east. On the northeast she occupied Vilnyus (*R*: Vilna; *P*: Wilno) which was claimed by the Lithuanians as their historic capital.

The settlement reached in 1919 barely lasted 20 years. In 1939, western Poland was overrun by the Germans, while the Russians occupied eastern Poland. With the defeat of Germany in 1945, the Polish State was reestablished. The centuries-old movement to the east was reversed, and a provisional western boundary of Poland was established along the rivers Odra (*G*: Oder)

and Nysa (*G*: Neisse), with a sort of "bridgehead" west of the Oder in the city of Szczecin (*G*: Stettin, 269,000).¹ At the same time the parts of eastern Poland occupied by the Russians in 1939 were formally incorporated in the U.S.S.R. The present eastern boundary of Poland approximates the Curzon Line which Poland had rejected 25 years earlier.

Since its reappearance in 1919 after a century of eclipse, Poland has been faced with heavy problems of internal organization and administration. The country was made up of three fragments, each of which had grown during the previous century into the economic life of Germany, Austria, and Russia, respectively. Railway gauges differed. The transportation facilities were oriented toward Berlin, Vienna, and Moscow, respectively. Currencies, tables of measurement, customs, and standards of living differed sharply. In the course of 20 years Poland went far toward solving these problems, and when a new integration appeared to have been achieved, the country was again partitioned. The new Poland has lost to Russia about a third of its original area and has gained in the west a rather smaller area. Much of the land lost was poor, and its population relatively sparse and backward. The area gained in the west was superior in many respects. It was not of high fertility, except in Silesia, but was better cultivated and more industrialized, and had an air of greater

¹ The population in 1960 is given for all cities of over 100,000.

TABLE 23-1. Poland before and after World War II

	1937-1938	1962
Area in square miles	149,960	121,131
Population	34,775,000	30,324,000
Cultivated area in square miles	71,647	78,211
Yield of wheat in metric tons	2,172,000	2,700,000
Yield of rye in metric tons	7,235,000	6,685,000
Yield of oats in metric tons	2,657,000	2,740,000
Yield of potatoes in metric tons	34,558,000	37,817,000
Production of coal in metric tons	36,218,000	109,604,000
Production of steel in metric tons	1,441,000	7,684,000

prosperity than the former territories of eastern Poland. Furthermore, Poland gained possession of that portion, approximately a third, of the upper Silesian coalfield which had remained in German hands after the First World War.

At the end of the Second World War the German population living within the territorial limits of the new Poland, numbering about 7 million, was driven westward into Germany by the Poles. Comparative statistics of prewar and postwar Poland (Table 23-1) show that Poland has lost in territory and population. The cultivated area has actually increased by a very small percentage.

THE REGIONS OF POLAND

Poland lies almost wholly in the North European Plain and continues eastward the physical divisions that we have met with in northern Germany. Almost the whole country was covered by the ice

sheet during the Great Ice Age. Traces of the earliest and most extensive advances of the ice remain, however, very scanty over southern Poland, and in central Poland the depositional landforms left by the ice have largely been obliterated by erosion. In terms of glaciation it is possible to divide the Polish Plain into three regions.

Northern Poland. The first region of the Polish Plain covers northern and northwestern Poland (Fig. 23-1). It is characterized by terminal moraines, which make up the most conspicuous features of the landscape, by depressions left in the moraine surface as the ice melted away and now occupied by lakes, by damp and ill-drained boulder clay, and by vast deposits of sand and gravel laid down by the melt waters as they escaped from the ice.

Northern Poland is a thinly peopled region;

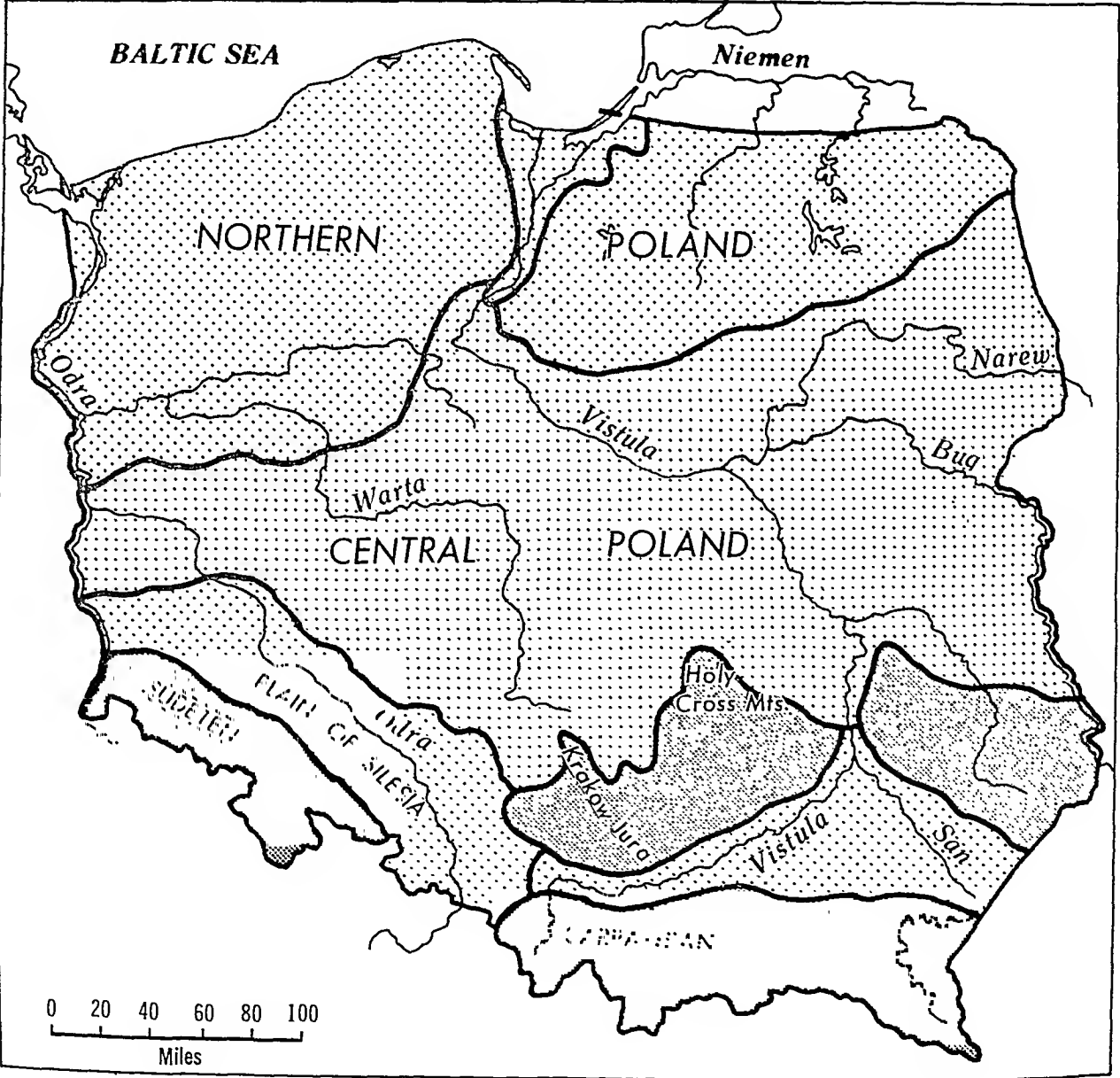
Polish landscapes: the northern plain of Poland is lightly wooded but intensively cultivated in most parts. This photograph was taken to the west of Warsaw. (N. J. G. Pounds.)



soils are generally poor, and large areas are under forest. Except the coastal ports, the cities are little more than market centers, of which the largest are Koszalin, Słupsk, and Olsztyn. This region is divided by the Vistula Valley into the more westerly Pomerania (*P*: Pomorze; *G*: Pomern) and the more easterly Mazuria (*P*: Mazury; *G*: Masurien). The ports lie at or near the mouths of the rivers which cross this region. Szczecin lies

on the lower Odra, 26 miles from the coast. It has water communication with upper Silesia, and is important for handling coal and iron ore as well as the commerce of western Poland. Gdańsk (*G*: Danzig, 286,000) lies on a distributary of the Vistula, along which its docks have been built. It is the traditional port of the Vistula Basin, but is now supplemented by Gdynia, 10 miles to the northwest, with which it is associated in a single

FIGURE 23-1. Poland: landform regions.



administrative port authority. The coast between the Odra mouth and the bay of Grańsk is straight, lacking in natural harbors, and backed by sand.

Central Poland. In central Poland the glaciation was earlier, the lakes have in most instances been infilled and disappeared, and the moraines have been reduced to insignificant proportions. The soil has been longer settled and is more fertile than in northern Poland. The rural population is more dense, and scattered through this region of Poland are many medium-sized and large cities.

The river Vistula takes a twisting course through the region, following depressions left by the glacial streams at the end of the Ice Age (see page 7). It is a broad, navigable river, though not really used above Warsaw. Plans to turn it into a great commercial highway have not yet materialized.

The largest city in this region is Warsaw (1,136,000), which grew up in the Middle Ages on the bluff above the western bank of the Vistula, where the marshy valley narrowed and could be crossed with relative ease. It did not grow much

until, early in the seventeenth century, it became the capital of Poland. In the nineteenth, with the construction of a standard-gauge railway south westward to Vienna, it became an important industrial center, a kind of intermediary between the developed industrial skills of the West and the backwardness of Russia under the Tsars. The city has now spread far from the river bluffs on which it grew up, but retains still its ancient core, now rebuilt after the destruction during the Second World War, of beautiful Renaissance architecture. Warsaw is now an important industrial city with steelmaking, automobile, chemical, engineering, and other industries.

Down the river from Warsaw are Toruń (*G*: Thorn, 105,000) and Bydgoszcz (*G*: Bromberg, 231,000), and to the west, across the almost level plain, is Poznań (*G*: Posen, 408,000). Each has a wide range of manufacturing industries, among which mechanical engineering is especially important. Near the southern margin of this region is Łódź (708,000) which grew up in the nineteenth century as the most important center of the textile

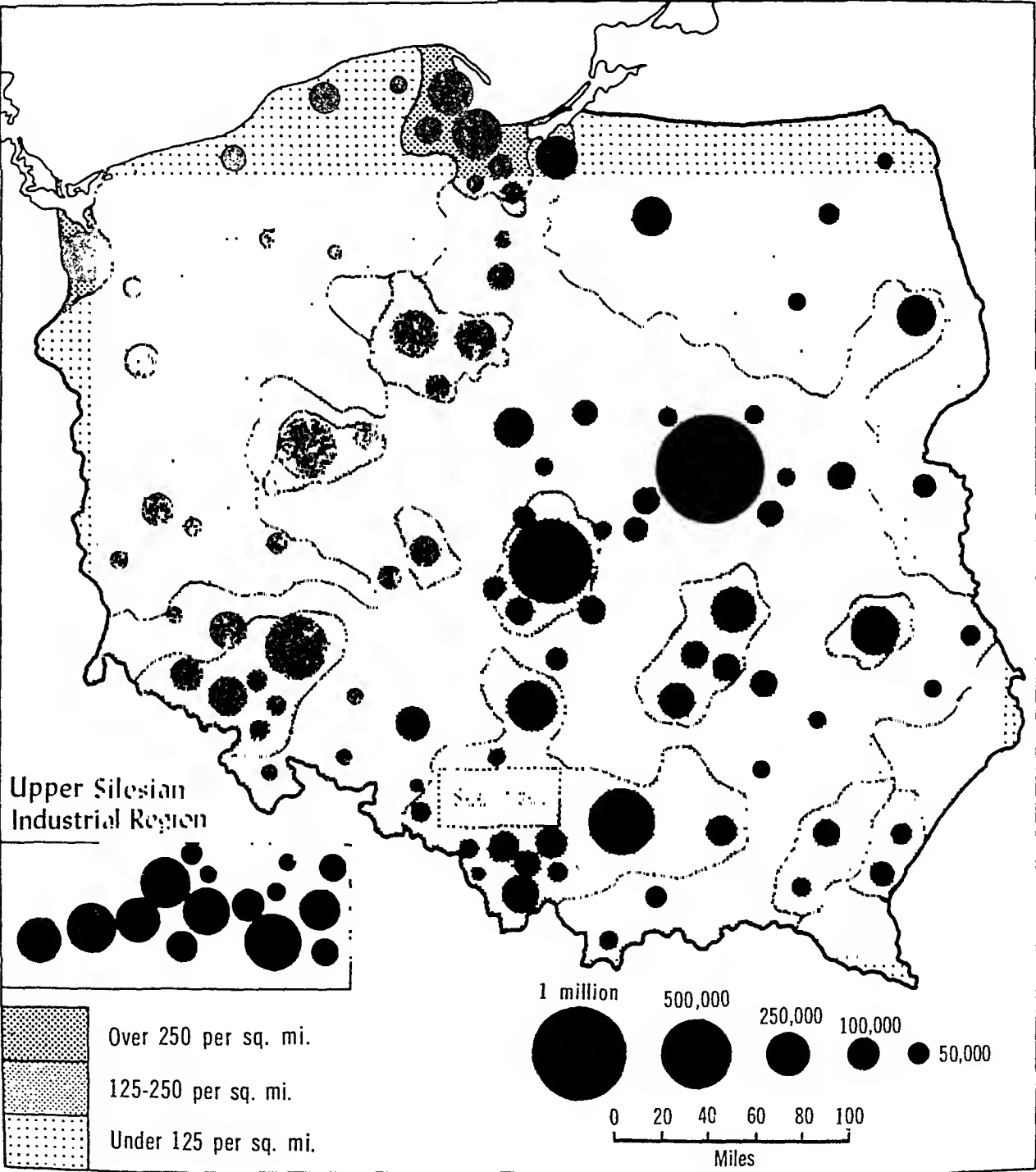
The old city of Warsaw lies on a low bluff on the west bank of the Vistula. Totally destroyed during the Second World War, it has been rebuilt in its old style in an attempt to recapture its earlier atmosphere. (*N. J. G. Pounds.*)



industry. It is dominated economically by the manufacture of cotton and woolen textiles, just as its landscape is dominated by its massive nineteenth-century factory buildings.

Southern Poland. South of the glaciated plain, the surface rises to a series of ridges and plateaus, built of rocks of very varied geological age, and dusted with loess which lightens the soil and gives

FIGURE 23-2. Poland: distribution of population and larger cities.



parts of this region a high agricultural fertility. In the west is the plain of Upper Silesia, with the city of Wrocław (*G*: Breslau, 429,000) in its midst, one of the most fertile and productive regions in the whole of Poland. To the east and southeast is a strongly contrasted region of greater altitude and poorer soil, underlain by mineral wealth that has made it one of the most valuable and important regions in Poland. To the north are the iron-ore deposits which are mined near Częstochowa; to the south are deposits of lead and zinc, and near the boundary of upper Silesia itself is the upper Silesian coalfield, second only to the Ruhr in all Europe in the volume of its resources.

Upper Silesian Industrial Region. The Upper Silesian industrial region is now united under Polish rule. The coalfield was intensively developed earlier than that of the Ruhr. A number of mines were at work and the steam engine had been introduced for pumping before 1800. Iron smelting has been of importance here since the eighteenth century, though it suffers today from the relatively poor quality both of the local iron ores and of the coking coal. The industrial region forms a compact and closely built area some 25 miles from west to east and 15 from north to south, with a total population of a little over 1,500,000. The chief urban centers are Gliwice (*G*: Gleiwitz, 135,000) in the west, succeeded by Zabrze (*G*: Hindenburg, 189,000), Bytom (*G*: Beuthen, 182,000). Chorzów, formerly Krolewska Huta (*G*: Königshütte, 147,000) Katowice (*G*: Kattowitz, 269,000) and Sosnowiec (132,000), together with several smaller urban centers which together make up the metropolitan region of Upper Silesia.

The Upper Silesian coalfield is strictly a basin, of broadly triangular shape and covering about 2,500 square miles. Only toward the northern apex of the triangle are the coal seams exposed. Here the coal was mined in the eighteenth century, and here the later industrial cities grew up. Since the early nineteenth century, coal mining has spread from the more northerly exposed areas of the field to those where the coal is deeply buried beneath later deposits. There remains a very large

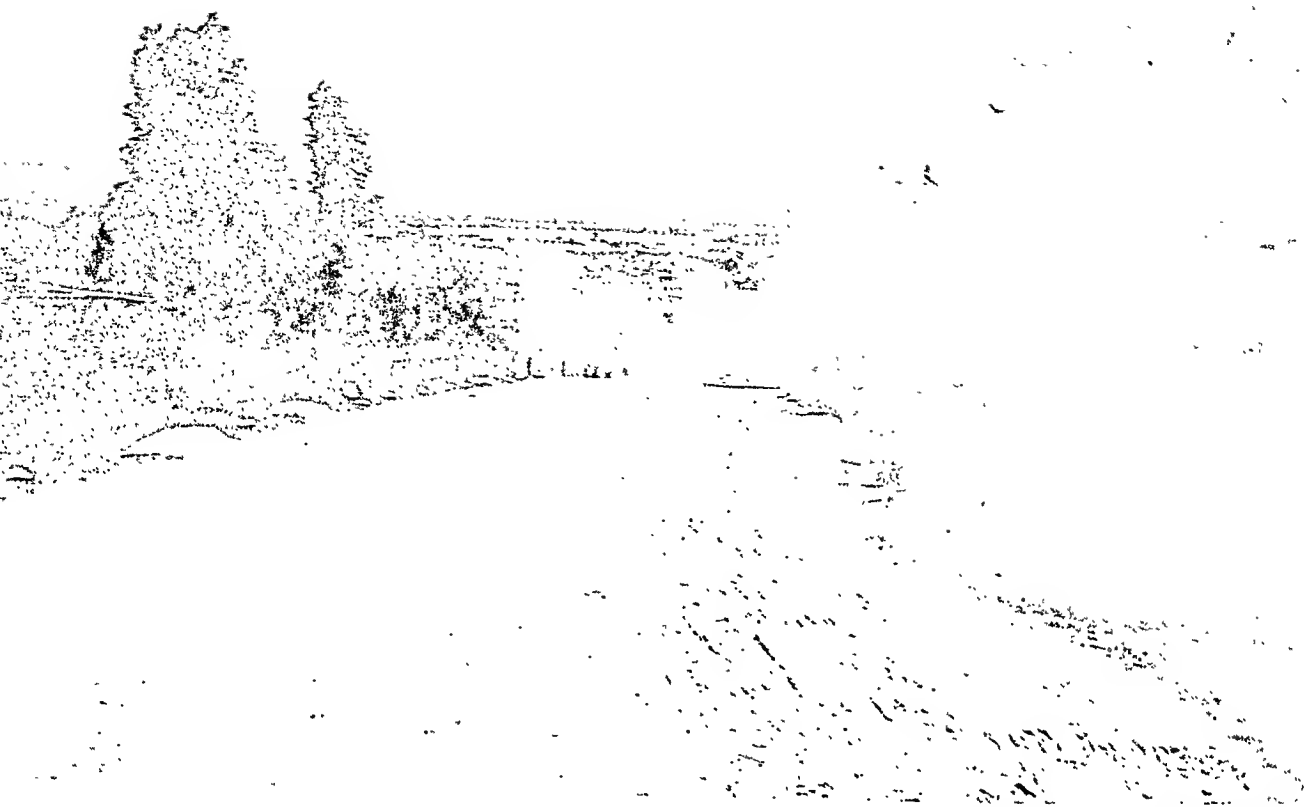
area where coal occurs in depth, but the land surface is covered only by forests interspersed with small rural settlements.

Over the northern margin of the coalfield stretches a thin deposit of limestone of Triassic age. It is a soft and soluble rock; solution cavities have formed in it, and these have in turn been filled with the ores of lead and zinc. Despite the great age of lead-zinc mining in this area, reserves are very far from exhausted, and mining remains important near Bytom. The lead- and zinc-smelting industry is located on the exposed areas of the coalfield, where fuel, formerly needed in immense quantities, was most easily available when the smelters were established in the nineteenth century.

The iron-smelting and steelmaking industries are distributed over the northern part of the coalfield, where the most suitable coal for metallurgical purposes was found. There are today important, integrated iron and steel works in Zabrze, Bytom, and Chorzów, and smaller smelting, steel-making, and steel-using works are distributed over the whole area.

East of the Upper Silesian industrial region is a limestone ridge, the Kraków Jura (*P*: Jura Krakowska), which presents a steeply scarped slope to the southwest, but descends eastward to the Nida depression. To the northwest, where river, road, and rail curve around its northern extremity, is the city of Częstochowa, once a fortified monastery crowning the hilltop, now the foremost place of religious pilgrimage in Poland and center of the iron and steel industry, which has been established here to combine the local ore with the coal from Upper Silesia.

At its southern end the Kraków Jura overlooks the river Vistula, here a small stream that has only just escaped from the mountains. In the early Middle Ages a low bluff on the north bank of the river was fortified, and grew into the royal castle of Wawel, while the city of Kraków (*Eng*: Cracow, 479,000) spread over the lower ground to the north. Kraków served at once as the city and fortress opposite the Moravian Gate and the route to the Danube. It lay also on the routeway which ran from Germany across southern Poland to the Russian steppe. It became the foremost



Polish landscapes: the rolling Hercynian hills of central Poland. The road shown here is that which runs eastward from Czestochowa to Kielce. The distant hills are the Holy Cross Mountains (P: Swietokrzyskie Góry). (N. J. G. Pounds.)

commercial city in Poland, and has remained the most beautiful. Five miles to the east, on a terrace above the Vistula, is the new settlement of Nowa Huta, geographically separate from Kraków, but administratively part of it. Nowa Huta, with about 100,000 people, is an industrial city, dependent upon a single works, the Lenin iron- and steel-works, which occupy a very extensive site on the eastern edge of Nowa Huta and are today the largest iron- and steelworks in eastern Europe. The site is close to neither coal nor ore, and the latter is, in fact, mainly brought by rail from the Soviet Union. The projected canalization of the Vistula will improve transportation for the factory.

East of the Nida depression are the Holy Cross Mountains (P: Świętokrzyskie Góry), the area of

strongest relief in the whole Polish Plain. They are formed by the outcrop of a complex series of hard, ancient rocks, which contain small quantities of iron ore, but yield only a poor, infertile soil. The rocks have been eroded to a series of short, forested ridges, of which the Łysa Góra (*Eng*: Bald Mountain, 1,945 feet) is the highest and most well known. Within these hills are a number of small industrial towns, whose origins go back to the time when the charcoal and the small reserves of iron ore sufficed to maintain a smelting industry. Foremost among them are Kielce, Stara-chowice, and Ostrowiec.

East of the Holy Cross Mountains, beyond the narrow valley which the Vistula has cut across their eastern extremities, lies the Lublin Upland

(*P*: Wyżyna Lubelska), an open plateau region, not unlike the Kraków Jura. Loess-covered and fertile, it is one of the most important agricultural regions of Poland. In it lies the city of Lublin (181,000).

South of both the Holy Cross Mountains and the Lublin Upland is a triangular region, covered with detritus worn from the mountains to the south and drained by the Vistula and its tributary the San. It is mostly an infertile region, but rises along its southern edge, on the border of the mountain and the plain, to a narrow belt of more fertile, more densely settled, and more highly urbanized land. At its western extremity is Kraków, and along it lie Tarnów, Rzeszów, and Przemyśl, once on the dominant west-to-east route-way and now cities with expanding chemical, engineering, and other industries. Near its northern limit, deposits of sulfur have recently been discovered and are now being exploited at Tarnobrzeg. Rock salt occurs east of Kraków, and has been mined since the Middle Ages at Wieliczka.

Southern Mountains. The southwestern and southern boundary of Poland, for almost the whole of its length of some 400 miles from the Nysa in the west to the Soviet border in the east, is traced through mountains. These are divisible into the Sudeten Mountains, which border Bohemia, and the Carpathian Mountains, which lie on the border between Poland and Slovakia.

Between is the Moravian Gate, a low-level route between the Odra and Vistula Valleys, opening northward, and the Morava, which discharges southward to the Danube.

The Sudeten Mountains are geologically the older, and belong to the Hercynian massifs of Bohemia and central Germany. They consist of a series of short, overlapping segments of mountain, the Karkonosze Góry (*G*: Riesen Gebirge; *Eng*: Giant Mountains), Góry Sowie, and others. The valleys between them, sometimes expanding into basins like that of Kłodzko (*G*: Glatz), permit relatively easy movement across the range. Many small towns lie in these valleys and carry on textile and woodworking industries, still using in some instances the water power provided by the mountain streams. The chief mineral resource is the coal of the Wałbrzych (*G*: Waldenburg) basin. The seams are contorted and difficult to mine, and the output is rarely more than 5 million tons a year, but it is an excellent coking coal, a quality singularly deficient in this part of Europe.

East of the Moravian Gate are the Carpathian Mountains. These consist of an inner mountain mass built of metamorphic and igneous rock, and an arc of lower mountains composed of younger and softer rock. Poland contains only a small part of the former, merely the northern flanks of the Tatra (*P*: Tatry) Mountains, with their resort of Zakopane, but a large part of the Beskid (*P*: Beskidy) Mountains. They form several curv-

A Polish small town: Poland is dotted with small towns, which serve as market centers, but have lost most other functions. This is Ilza, near Radom, overlooked by the ruins of the medieval castle which once protected it. (*N. J. G. Pounds.*)



ing ranges, dissected by the narrow, transverse valleys of the rivers which emerge from the inner mountains and flow northward to the Vistula.

This is a forested, thinly peopled region, noteworthy for the survival of dialects and folkways that have disappeared elsewhere. There are a few resorts, but lumbering is one of the most important industries. Some of the mountain valleys are now being dammed both to supply water to the industrial cities and to generate power.

POLAND'S ECONOMIC DEVELOPMENT

Both Poland and eastern Germany had formerly been characterized by the great number of large estates, frequently owned by absentee landowners, managed by bailiffs, and cultivated by a poor tenantry. After the First World War, many of these estates were broken up into small holdings and distributed to the cultivators, but the changes were insufficient to alter fundamentally the basic pattern of land tenure. The new Poland has carried this movement very much further, and the Communist regime showed no reluctance to expropriate the possessions of the former aristocracy and of the wealthier peasants. The estates and larger farm holdings have now been entirely broken up and distributed among the landless peasants and those who possessed only minute holdings. This land reform was followed by a premature and short-lived attempt to collectivize agriculture on the Soviet model. This ran into intense opposition from the peasantry and after 1956 was abandoned. Today only 13.1 per cent of the farmland belongs to the socialized sector (see page 58).

Polish agriculture has, however, been modernized to some degree in recent years. The number of farm tractors and of other types of agricultural machinery has been greatly increased. The number of tractors has risen from about 5,000 in 1949 to 9,800 in 1960. The use of fertilizer and better seed, the more careful breeding of farm stock, and even the consolidation of formerly scattered farm holdings are making slow progress.

Rye and potatoes have long been the principal

crops of Poland, and they are grown abundantly in the newly acquired German lands. Wheat and oats are important only in the south, where wheat does well in the light loess soils of the southern platform of Poland. Oats as well as rye are grown in the mountainous areas of the south. Sugar beet is grown in Silesia, Poznań, and Pomerania. Hemp and flax are commercial crops in parts of the northern plain.

The possession of a large number of farm animals is usually an indication of a high level of human welfare. Farm stock was not abundant in the old Poland, and the Polish government is today planning to increase its number very greatly. Cattle are relatively numerous in Poznań and Pomerania, areas that were German before 1919, and on some of the better lands of southern Poland. Pigs are numerous in the western provinces, where they are part of a dairy-cattle economy. Sheep are relatively abundant in the east.

At present about 25 per cent of the area of Poland is under forest, and the lumber industry is of great importance. Much of the forest is broad-leaved deciduous trees, but there are large areas of coniferous forest in the Carpathian Mountains in the extreme south and over the morainic country in the northern part of Poland. Much of the coniferous woodland has been planted in recent years, and the greater part of Poland's lumber production is softwood.

Rural settlement in general resembles that of eastern Germany. Compact, nucleated villages are met with most frequently in the southern area of fertile, rolling, open country. But over much of northern Poland the street or forest village, in which the houses lie, rather widely spaced, is the most common. A scattered settlement pattern, however, is found in the lake-studded regions of heavy boulder-clay soil in the former territory of East Prussia and neighboring areas of Poland.

The population of Poland in 1963 was about 30,807,000. On the eve of the Second World War it had been over 34,500,000. A small number of Poles now live under direct Russian rule in the ceded territories east of the new boundary. Large numbers, including most of the Jewish population,

Almost half the Polish population is still rural, living in long, streetlike villages, made up of wood-built cottages which, sometimes with small gardens, lie directly on the winding road. The photograph shows a village near Kraków. (N. J. G. Pounds.)



were eliminated during the war. Poland is estimated to have lost a total of about 6 million of her citizens as a result of the Second World War.

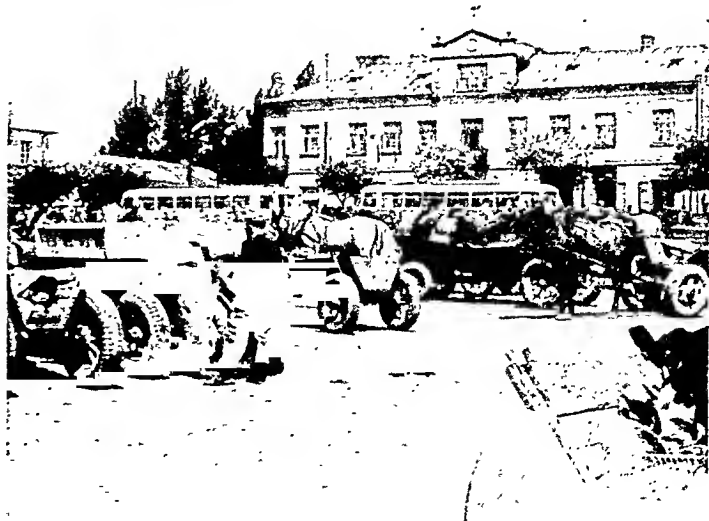
Before the Second World War about 10 per cent of the population of Poland was Jews. Poland then contained a large part of the "Pale," the area within which the Jewish population of Russia had been compelled to live. Here they dwelled in the ghetto quarters of the cities, often in overcrowded and unsanitary conditions and limited by custom or law to only a narrow range of occupations. The cities of Łódź, Warsaw, Lwów, and Wilno contained the largest Jewish settlements, but in some smaller towns of eastern Poland the Jews amounted to a far greater proportion of the population. In Pinsk, for example, they made up about 75 per cent of the city's total population. A large part of this Jewish population perished during the years 1939 to 1945, and a part of those who have survived have migrated from Poland. There

remain in Poland today no more than about 100,000 Jews.

The shift in the geographical boundaries of Poland has excluded from the new state most if not all the Ukrainian people of the southeast, the Lithuanians of the northeast, and the White Russians of the Pripet (*P*: Prypeć; *R*: Pripyat) region. Some of these peoples had before 1939 constituted difficult and sometimes irreconcilable minorities within the Polish State. But these eastern territories included also the cities of Lwów (*R*: L'vov; *G*: Lemberg) and Wilno. They had been predominantly Polish and Jewish in population, though the surrounding countryside had been Ukrainian and Lithuanian, respectively. Both were important in the national consciousness of the Poles, being regarded as bastions of their Western civilization against peoples and cultures of the East.

Despite the very large proportion of the popu-

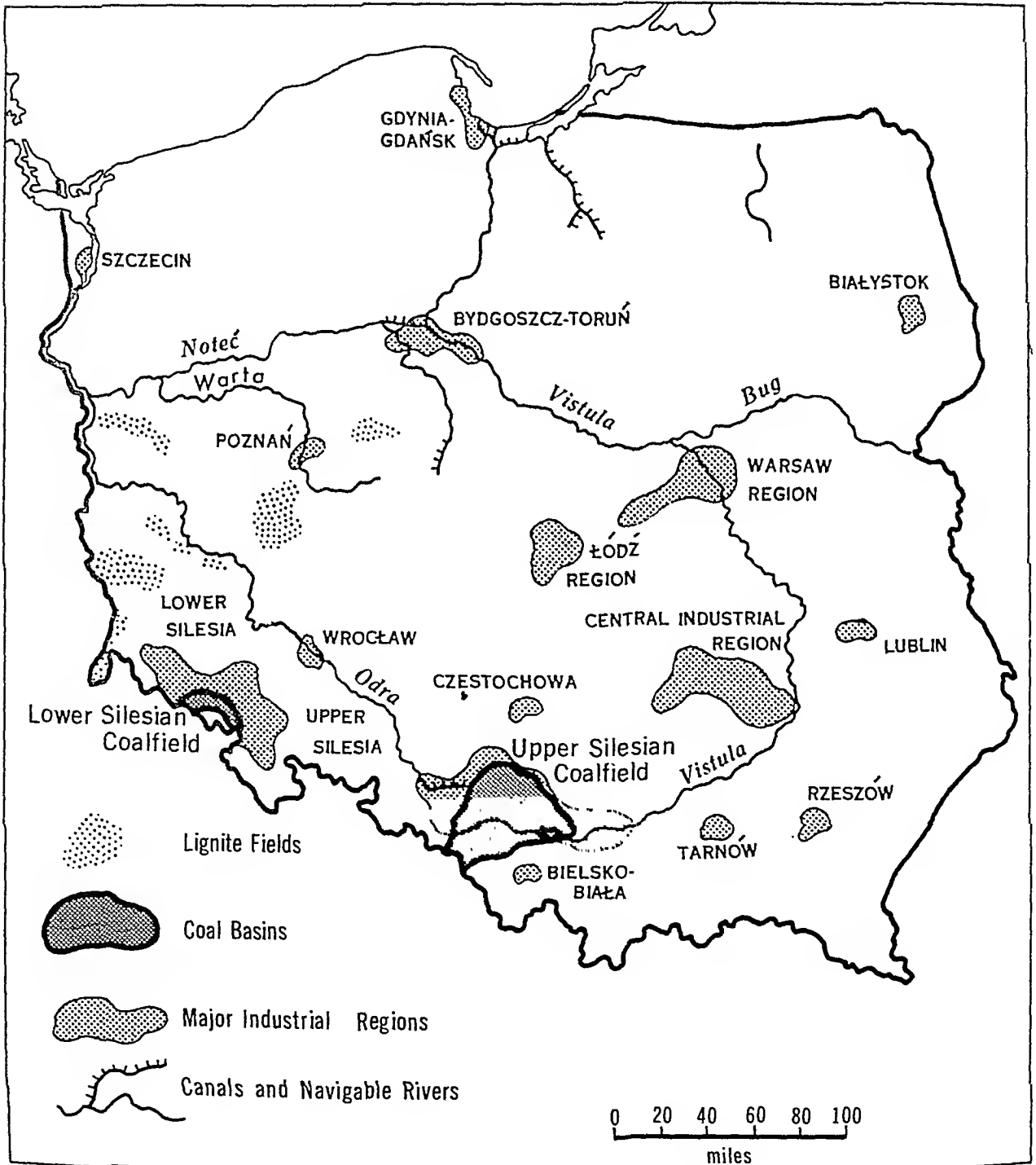
The small town and its market still focus the economic life of rural Poland. The photograph shows Piaseczno, south of Warsaw. (N. J. G. Pounds.)



lation that is engaged in agriculture and living in rural areas—it was about 75 per cent before the Second World War, and is today only a very little smaller than that employed in industry—Poland

has now a considerable number of large cities. Warsaw is again a city of well over a million people, and in all, there are 22 cities of over 100,000, with together a population of 3,500,000,

FIGURE 23-3. Poland: mineral resources and economic regions.



in comparison with Czechoslovakia, which has only 5 cities of this size. Most of Poland's industries are gathered into a group of large cities; many of Czechoslovakia's are scattered over a large number of cities of small or medium size.

Poland is today, potentially at least, a well-balanced though still only partially developed country. Its coal production is second only to that of Great Britain and Germany among European countries. In the Carpathian foothills are small reserves of petroleum, though production is less than 1 million tons. Lead, zinc, and copper have been worked in Silesia, iron ore in the provinces of Katowice and Kielce, salt at Wieliczka. There are considerable reserves of lignite, and large quantities of timber are found in most parts of Poland.

Poland is again faced with the problem of welding into a single political unit different territories with differing histories and traditions: the provinces of eastern Germany and the central and western parts of prewar Poland. Though her resources are now somewhat greater, the task is more difficult than in 1919, because Poland was devastated to a far greater degree during the Second World War than she was during the First. Some cities, including the capital, have been largely destroyed, and large areas were left almost unpopulated. Furthermore, Poland is today dominated by the military strength of Russia, which in 1919 was weak and torn by civil war. Owing to this dependence on Russia, Poland cannot easily obtain capital from the Western Powers and from the United States, the only countries capable of making advances and supplying equipment on a large scale for Poland's recovery and development.

Most of Poland's foreign trade is with the countries of the Communist bloc—in 1960 no

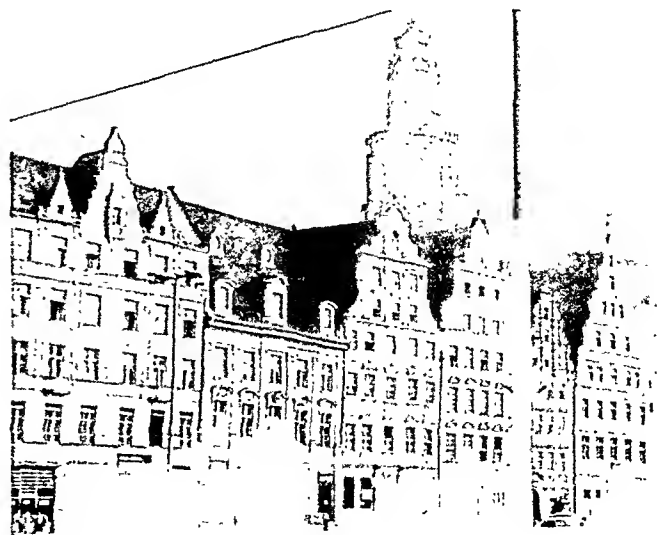
TABLE 23-2. Chief Elements in Poland's Foreign Trade, 1961 (In Millions of Exchange zloty)

Item	Imports	Exports
Live animals	2.4	5.8
Foodstuffs	319.6	1,035.2
Raw materials for the food industry	708.0	247.9
Other raw materials of vegetable and animal origin	1,070.5	295.6
Fuels, minerals, and metals	1,799.3	1,789.7
Chemicals, fertilizers, and rubber	445.4	205.7
Building materials	36.5	57.1
Machinery and equipment	1,964.7	1,686.4
Consumers' goods of industrial origin	400.4	691.0
Total	7,541.6	6,014.3

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1962.

less than 66 per cent of it. Her most important trading partners, after the Soviet Union, were East Germany and Czechoslovakia.

The export trade continues to be dominated by coal, though the increasing use of water power in Scandinavia has gravely threatened this commerce. Other important exports are the products of the metallurgical and textile industries. Imports include food, particularly bread crops, and petroleum.



Some of the cities of western Poland owe their present appearance to centuries of German rule. Wrocław (G: Breslau), shown here, is an example, though its population is now almost wholly Polish. The photograph shows the city square. IN. J. G. Pounds.)

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Czechoslovakia

24

The state of Czechoslovakia first made its appearance on the map of Europe in 1918. Its territory embraced, as its name indicates, the lands of two small but distinctive peoples, the Czechs and the Slovaks. Subsequently the Ruthene people living in the central Carpathians were added. The boundaries of the new state in the west were, in the main, those of the "historic kingdom" of Bohemia (Čechy). This involved the inclusion of about 3,123,500 Germans, who lived chiefly in the hilly area. The boundaries as ultimately delimited included also small numbers of Poles and Magyars. Unlike Poland, Czechoslovakia has been, territorially at least, comparatively stable. If war-time changes of frontier are excluded, Czechoslovakia is today very much the same as she was 30 years ago; only the small Ruthene territory in the east was ceded to the U.S.S.R. in 1945.

Czechoslovakia is built of three distinct physical units. In the west is the diamond-shaped mass of Bohemia, consisting of ancient, hard rocks, with a ring of mountains and an interior depression drained by the Elbe. To the east is the plain of Moravia (Cz: Morava), and east of this again are the Carpathian Mountains which compose Slovakia (Cz: Slovensko).

BOHEMIA

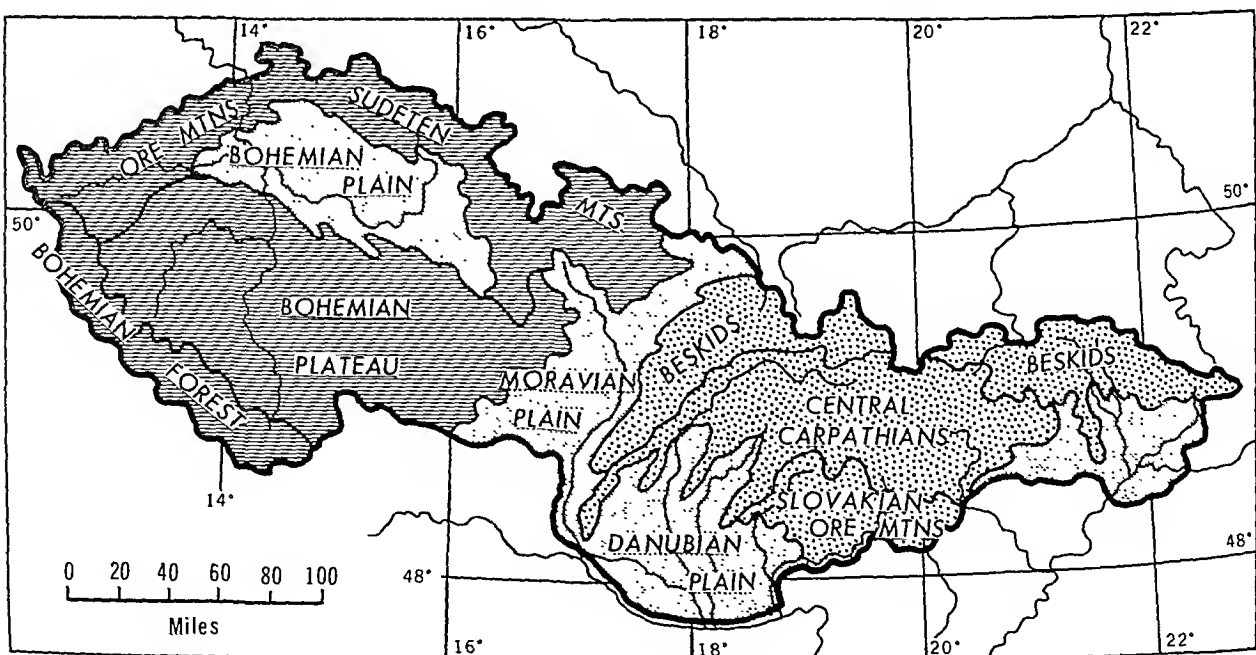
The diamond-shaped province of Bohemia is the most westerly and in many respects the most important region of Czechoslovakia. On most sides the mountains which form its rim rise steeply from the plain or plateau of the interior. In places, notably the Sumava and Krkonoše Hory, they attain considerable heights and include some of the highest mountains north of the Alps. The surrounding hills are least conspicuous on the southeast, where the plateau of southern Bohemia rises only to a rounded upland area, nowhere mountainous and in all parts easy to cross. On other sides, however, the mountains present serious barriers to movement. They are highest and most difficult to cross on the southwest, where the Šumava and Český les (*G*: Bohmerwald; *Eng*: Bohemian Forest) separate the Czech lands from southern Germany.

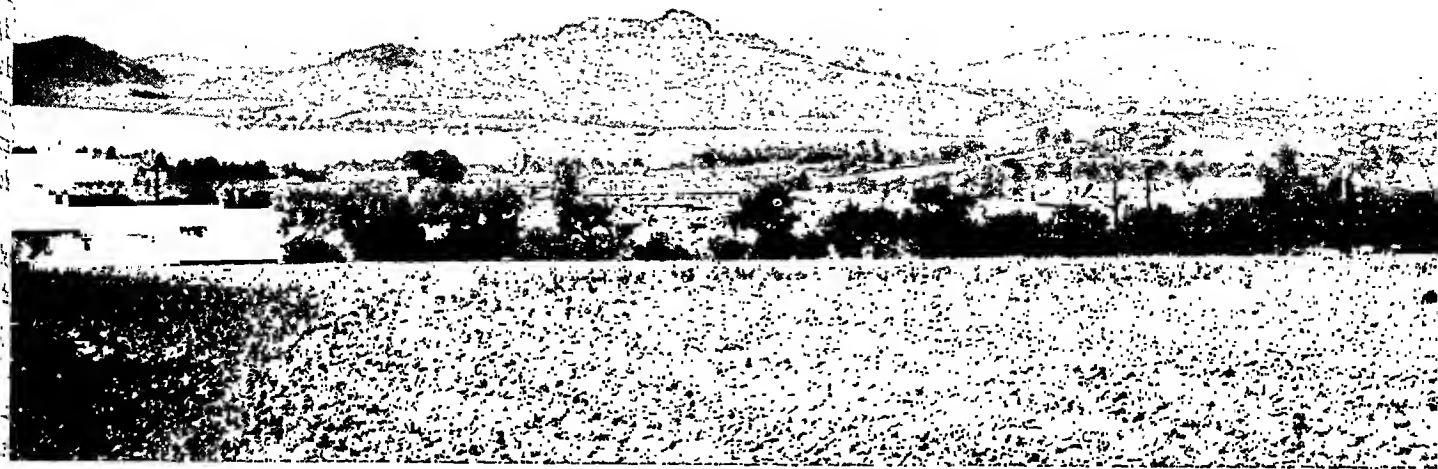
On the northwest is the Krušné Hory (*G*: Erz Gebirge; *Eng*: Ore Mountains). These mountains rise gently on the German side from the plains of Saxony and present their face southeastward toward the interior of Bohemia. The Ore Moun-

tains derive their name and also their former importance from their wealth of minerals. Ores, particularly of the nonferrous metals, have been found here in quantity. Mining is no longer of great importance today, though the region contains one of the very few occurrences in Europe of the mineral uranium, which is said now to be intensively worked.

In the north of Bohemia the river Elbe, which, with its tributaries, drains the whole of the country, breaks through the Ore Mountains by a defile below the town of Ústí nad Labem (*G*: Aussig) and enters Germany. Along the northeast the separate ranges of the Sudeten Mountains form the border with Poland (page 317). The mountains are here less continuous than on other sides. The highest range is the Krkonoše Hory (*P*: Karkonosze Góry; *G*: Riesen Gebirge; *Eng*: Giant Mountains), which reaches 5,358 feet in the Šněžka (*P*: Śnieżka; *G*: Schneekoppe). The mountains contain many small, partially enclosed basins. Some of these have deposits of coal, either black or brown (lignite), and most can offer the attraction of water power. Many industries, especially the manufacture of glass and textiles, have been estab-

FIGURE 24-1. Czechoslovakia: landform regions.





The Bohemian Central Mountains (Cz: Ceske Stredohori) are a range of rugged, picturesque hills in northern Bohemia. (N. J. G. Pounds.)

lished. Liberec (*G*: Reichenberg) and Jablonec (*G*: Gablonz) are the largest of the many small cities of this region.

Most of this mountain rim of Bohemia, it is generally supposed, was colonized during and after the Middle Ages by Germans, who established here their industrial and mining activities. The German settlers were in origin craftsmen rather than agriculturalists, settling among and doubtless exploiting a more primitive and agrarian Czech people. Considerable areas were wholly Germanized, and leadership in industrial matters formerly went naturally to the Germans. Until 1919 Bohemia, along with other parts of the Czechoslovak state, was part of the Austro-Hungarian empire. The Germans of Bohemia, or Sudeten Germans as they were called, were thus German-speaking subjects of an Austrian emperor. In 1919 they became members of a predominantly Slav state. It is said that the new state was willing to accept over 3 million Germans in order to obtain the strategic advantage of the mountain frontier. President Masaryk, the first president of the new republic, believed that, given a long enough period of time—he asked for 40 years—the Germans could be assimilated and made into loyal subjects. He had not reckoned with the early rise of aggressive nationalism in Germany. In 1938, by the Munich Settlement, Germany

annexed the areas in which most of the Sudeten Germans were settled but took at the same time about a million Czechs. The land in 1945 returned to Czechoslovakia, and a large proportion of the Germans was driven out and forced to migrate to Germany. The German penetration of Bohemia had been deepest on the northwest and northeast, where at the same time the mountains were more accessible and their resources greater.

The Bohemian Plain, which lies within the barrier of hills, is far from being a level or uniform region. The northern part, drained by the Elbe (Cz: Labe) and the Ohře, is a plain broken by ridges and isolated hills. In the north west, lying parallel with the Krušné Hory, is a ridge of volcanic hills, the České Středohoří (*G*: Mittelgebirge; *Eng*: Middle Mountains), across which the Elbe River has cut a narrow valley at Litomerice. To the southwest are the Doupovské Hory and related hills, together forming an extensive, flat-topped massif of igneous and metamorphic rocks. Around their margins are springs of hot mineral water, which have earned a wide reputation for their medicinal qualities and have given rise to spas and health resorts such as Karlovy Vary (*G*: Karlsbad), Jáchymov (*G*: Sankt Joachimsthal), and Mariánské Lázně (*G*: Marienbad). Between these hills and the Krušné Hory is a depression, drained in part by the river

Ohre, in which are the lignite workings of Sokolov and Most, the metallurgical center of Chomutov (*G*: Kommotau), the chemical- and glass-manufacturing center of Ustí nad Labem, as well as a number of lesser industrial towns.

The plain of northern Bohemia is in reality a region of low, rolling hills and broad, fertile valleys. In places a dusting of loess adds to the fertility. The rougher land is wooded, but much of the area is fertile and well cultivated.

The climate is one of cold winters, with an average temperature in January of under 30°; summers are warm and bright, though rainfall is adequate for all agricultural purposes. The valley of the Elbe is the most valuable agricultural land in Bohemia. Wheat and sugar beet are important crops. Fruit is grown, and hops are raised to flavor the beer for which Plzeň (*G*: Pilsen, 138,000)¹ is famous.

A particular resource of this region is lignite, here obtained from vast open workings. Some of it is compressed into briquettes and distributed over Bohemia, some is burned to generate electric power, and much is used as a basis for the manufacture of chemicals and synthetic oil.

Southern Bohemia lies appreciably higher, and the rivers are incised in valleys that are often deep and narrow. The rise in level makes a con-

siderable difference in the climate, which is here colder in winter and cooler in summer. Rye rather than wheat is grown; potatoes and pastoralism are more important than on the lower ground. In this region the population is less dense and cities are fewer and smaller. Prominent among them, however, is Plzeň, famous for its beer but more important for its production of quality steel in the Škoda works and for its engineering and automobile industries. This industry was based originally on iron ore from the nearby Brdy Hills and the local coal. The iron ore is no longer worked, and the coalfield is nearing exhaustion, but the industry continues to operate on the basis of imported materials. Among other cities are České Budějovice (*G*: Budweiss), also noted for its beers.

Prague (*Cz*: Praha; *G*: Prag, 1,003,000) lies close to the junction of these two regions of Bohemia, on both banks of the Vltava (*G*: Moldau), a tributary of the Elbe. High above the east bank of the river stands the ancient fortress, the Hradčany, which contains the cathedral of Saint Vitus. The old city lies on the slope below, and the newer but still essentially medieval city spreads over the lower land on the distant or eastern bank of the river. In the Middle Ages Prague was a focus of routes which radiated over Bohemia and reached to Germany and Poland. Its central position gave it an advantage as capital of the Czech State; it has developed varied indus-

¹ The population in 1961 is given for cities of over 100,000.



Lignite is a most important fuel in Czechoslovakia. It is obtained from large open pits. The working shown here is near Most; in the distance are the Ore Mountains (*Cz*: Krusné Hory). (N. J. G. Pounds.)



Prague lies on both banks of the Vltava. On the western, or left, bank rises the steep hill, crowned by the cathedral of St. Vitus and the complex of buildings ranging from the early Middle Ages to the eighteenth century, known as the "Hradčany," which once served as the royal palace and now houses the Czechoslovak government. (Czechoslovak Embassy, Washington.)

tries and is particularly occupied in engineering and in the manufacture of clothing and other consumers' goods.

A few miles west of Prague is the small coal-field of Kladno, where an iron and steel industry has been developed.

In the Elbe Valley to the east of Prague are a number of small industrial towns, which have increased greatly in importance in recent years. Many new industries have been located here. Largest of these cities is Hradec Králové (*G*: Königgrätz).

MORAVIA

Moravia is essentially the basin of the Morava tributary of the Danube. It is an area of low or undulating country which joins the plains of Silesia with those of the Danube. On the west, the land slopes gently to the hills of Bohemia;

to the east the Carpathians rise more sharply to the forested ridges of the Beskids (*Cz*: Beskydy). The region narrows toward the northeast and on this side is only a few miles wide. The Moravian Gate (*Cz*: Moravská brána) provides one of the easiest, and historically and economically most important, routeways between the North European Plain and the Danube Valley. It is of great commercial and strategic importance, and is used by road and rail, and the projected Oder-Danube Canal will lie through it.

The lower parts of Moravia form good, rich farmland, similar to the plain of northern Bohemia. There are many market and industrial towns, including Olomouc (*G*: Olmütz) and Brno (*G*: Brünn, 314,000), the second city of Czechoslovakia, where textiles are made and industries associated with the surrounding agricultural land are carried on. At Gottwaldov, formerly called Zlin, the Bat'a boot and shoe factory was estab-

lished to produce cheap and serviceable footwear for the millions of peasants of the Danubian lands.

In the extreme north of Moravia the southwestern corner of the Silesian coalfield extends into Czechoslovakia. In both area and resources it is much inferior to the Polish sector of the coalfield, but it does produce a good-quality coking coal, which is used not only locally, but also in Bohemia and Poland. The production of coal from the Moravian field is today more than 22 million tons annually. An iron-smelting industry grew up during the nineteenth century, in the vicinity of the coalfield. Today there are three large iron- and steelworks: Vítkovice, Kunčice, and Třinec, which lies away to the southeast, in the Olše Valley, where it opens from the Beskydy. The steel production from this region is now over 6 million tons annually. The chief industrial city in this region is Ostrava (G: Mährisch-Ostrau, 235,000).

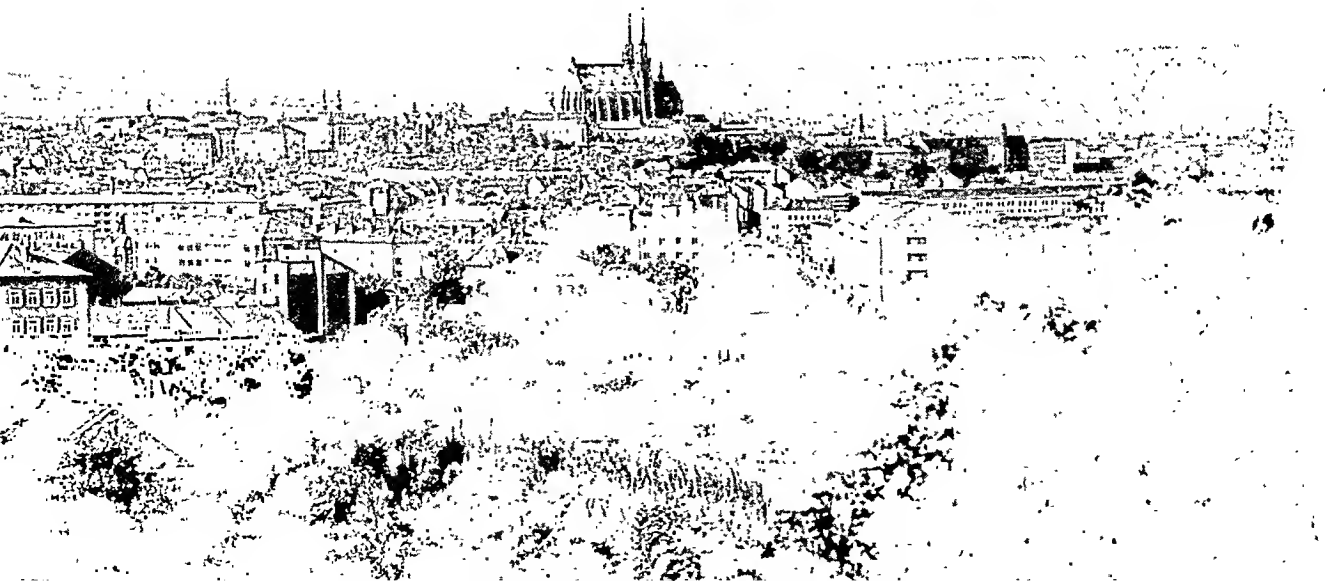
SLOVAKIA

The Carpathian Mountains are a continuation of the Alps. Fingers of hill reach northeast from the Alps of Austria, are interrupted by the Danube,

and then continue as the Little Carpathians (Cz: Malé Karpaty), getting higher and broader as they stretch northeastward. Like the Alps, the Carpathians consist of a series of west-to-east ranges, separated from one another by wide valleys. On the north are the Beskydy, which continue into Poland. These consist of short, dissected ridges, around which movement is not difficult. To the south are the High Tatra (Cz: Vysoké Tatry) Mountains, the highest part of the whole range (Stalinov štít, 8,735 feet) and the only area within which truly alpine land forms have been produced. The Low Tatra (Cz: Nízke Tatry) lies to the south of the High Tatra, separated from it by the basin of Liptov. Both the Low Tatra and the Slovakian Ore Mountains, which lie yet further to the south, resemble the gentler topography of the Beskydy but are nonetheless sparsely populated. They were formerly important for the minerals that were obtained here, and a number of Germans settled here, especially at Kremnica and Banská Bystrica, and in the nearby Spiš (G: Zips) area, where the evidence of their settlement is prominent in the architecture. These mountains are today important chiefly as a source of timber.

The valleys of the Carpathians formerly sup-

Brno, the capital of Moravia, lies amid the rolling hills of Moravia. The city has grown up around the low hill which bears on its summit the Gothic cathedral. (Czechoslovak Embassy, Washington.)



ported only a sparse population of poor peasants. Life is hard. Winters are long and severe and greatly restrict crop farming. Hardy crops of oats and rye are grown, but pastoral farming is the most important. Settlements consist of small clusters of rude wooden houses. The gardens, the brightly colored walls, and the touches of artistry that characterize the villages in the prosperous Czech lands are far less prominent in the Carpathians. The whole region has long been remote from the mainstream of the state's economic life and development. The Slovaks formerly felt a certain resentment toward the more prosperous Czechs, who, they supposed, had done too little to assist them. Today this is being remedied. Industries are being established in the mountain valleys of Slovakia; the rivers, particularly the Váh and Hron, are being dammed for the generation of power; chemical and engineering works have been established, especially near Zilina, and an integrated iron- and steelworks is being built in the hills to the west of Košice. At the same time Slovak peasants are moving westward to take up employment in the developing industrial centers of the western half of the country.

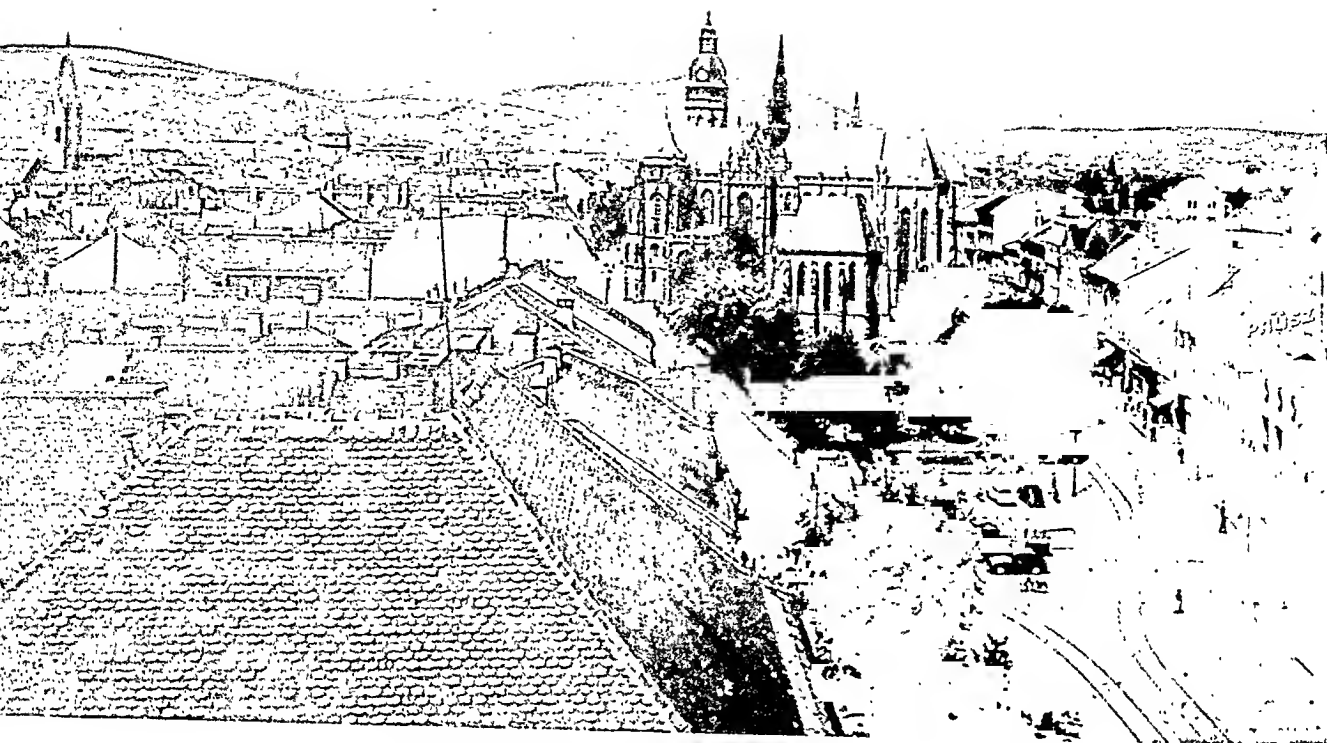
The Carpathians are drained by the Váh, Hron, Hornád, and other streams which flow southward toward the Hungarian Plain. As the valleys widen toward the plain, the basis of economic life changes. The quality of the soil improves, the climate is less inclement, crop husbandry becomes more important, and the Slovak peasant gives way to the Magyar or Hungarian. The Magyar is, in general, an inhabitant of the plain as the Slovak is of the hills, though there are Slovak communities also in the plain. The former is in the main an agriculturalist; the latter, a pastoralist or lumberman who practices only subsidiary agriculture. The two are complementary, and they have long exchanged their produce in the many small market towns that lie along the edge of the plain. A town lies opposite the opening of all except the smallest of the valleys; Trenčín, Nitra, and Košice are among the largest. The state of Czechoslovakia incorporated the margin of the Hungarian Plain partly to secure possession of these market centers on which was focused the life of the

mountain regions, partly to incorporate all the Slovak communities in the new state, and partly to establish a defensible boundary along the rivers Danube and Ipel'. This involved, however, the inclusion in the new state of over half a million Magyars. The Magyar-settled territory was occupied by Hungary in 1938 but returned to Czechoslovakia in 1945. Arrangements made at that time to exchange the Magyar minority in Czechoslovakia for the small number of Slovaks remaining within Hungary were only partially carried out; there remain about 416,000 Magyars within Czechoslovakia.

The only large city in the whole of Slovakia is Bratislava (*G*: Pressburg; *H*: Pozsony, 242,000), lying upon the northern bank of the Danube about 40 miles downstream from Vienna. Its situation is a strong one. It lies on a spur of the Little Carpathians and served as a fortress for the defense of the upper Danube Valley from invaders from the east. It is a river port of some importance, an industrial center engaged in working up the produce of its agricultural hinterland, and the capital of Slovakia. Second in importance is Košice (*H*: Kassa), at the opposite end of Slovakia, now being developed as a center of heavy industry.

THE POLITICAL PROBLEM OF CZECHOSLOVAKIA

The most serious internal problem of the state of Czechoslovakia has been created by the variety of peoples within it. Greatest of these in number and in political importance have been the Czechs, who inhabit Bohemia and Moravia. It was around the Czech people that the new state was built, and the Czechs provided much of the political leadership. By contrast the Slovaks were, in the main, mountain dwellers of the Carpathians. In language and culture they resemble the Czechs, but they are to a greater degree a rural people. They lack the political experience and maturity of the Czechs, and they have tended to resent the latter's stronger position in administration and public service. It was not, however, until 1938 that the Slovak autonomous movement made much headway. At present (1963 official estimate) there



Kosice lies where the Carpathian Mountains of eastern Slovakia merge into the Hungarian Plain. It was a small market town, gathered round its cathedral, until recent industrial growth made it one of the larger cities of Czechoslovakia. (Czechoslovak Embassy, Washington.)

are about 9,248,000 Czechs and 3,911,000 Slovaks in Czechoslovakia.

In addition to these two peoples, the Czech State formerly included about 3,250,000 Sudeten Germans, who inhabited the borders of Bohemia. They were on the whole somewhat more urbanized and industrialized than the Czechs, controlling much of the textile, glass, and chemical industries. Their expansion is a serious loss to the internal economy of Czechoslovakia and has resulted in a lack of skilled labor in many branches of industry. Only a small number, estimated at about 168,000 Germans, have been allowed to remain.

The Ruthenes formed only a small group of about half a million, inhabiting the mountains to the east of Slovakia. They were incorporated into Hungary in 1939 and after 1945 were added to the Soviet Union. They are closely related to the people of the Ukraine. The Hungarian or Magyar minority, living mainly in the plains of southern Slovakia, has already been mentioned (page 323); it numbered in 1958 about 433,000. The Polish

minority is least in number and smallest in political importance. It numbers only about 84,000 and is found mainly in the industrial region of northern Moravia, close to the Polish boundary.

The fundamental difference is between the Czechs and Slovaks. These two related peoples have not always worked harmoniously together in the new state. The growth of a Slovak independence movement was encouraged by Germany, which sought in this way to weaken the Czechoslovak State. In 1938 it secured a limited autonomy for Slovakia, and in the next year, under German patronage, a Slovak State came into existence. Slovakia is no longer independent, but the rift that separates Slovak from Czech is still not completely healed, though both peoples fully realize the need for a single Czechoslovak State.

ECONOMIC DEVELOPMENT

Czechoslovakia has a more balanced economic development than its neighbors to the north and south. Approximately 25 per cent of the employed

part five

Southeastern Europe

ably the most completely collectivized of all the east European countries. Farm units are now generally of several thousand acres, and the new collective buildings are the most conspicuous features of the landscape in many parts of the country. With collectivization has come the mechanization of farming. Tractors and combines are now normal in many parts of the country.

The range of crops grown is broadly similar to that in central and south Germany. Mixed farming is general. Three regions where crop farming stands out as of exceptional importance are the Elbe Valley in Bohemia, the "Golden Belt" as it is called; the Moravian Plain; and the borders of the Hungarian Plain. Elsewhere crop husbandry is relatively less important and animals more so. In Slovakia the altitude and greater severity of the climate restrict the range of crops, and much of the agriculture is on a subsistence basis. Rye is here the most important cereal crop, oats and potatoes are grown, and sheep rearing is carried on on a large scale. Much of Slovakia is forested, the area of agricultural land is restricted, and crop yields are small.

Before the First World War the Czech lands developed as the foremost center of manufacturing industries within the Austro-Hungarian empire. For this they had peculiar advantages. Bohemia and Moravia had small but important coalfields, and the occurrence of minerals had given an early impetus to the smelting industries. The large population of the Austro-Hungarian empire offered a wide market. In 1919, the independent republic of Czechoslovakia found its industries cut off from markets which they had grown up to serve. Czechoslovakia adjusted itself to these new conditions by exporting considerable quantities of cotton textiles, light metal goods, paper, pottery, and glass, especially to western Europe. After the German occupation of the Czech lands in 1939, the Germans located certain strategic industries in Czechoslovakia, whose position in central Europe offered it some protection from air attack. Czechoslovakia has today added to these layers of industrialization by strengthening those in which she had a particular advantage, notably glass and ceramics, and certain branches of the chemical

and metallurgical industries. This latest phase of Czechoslovak industrialization is tied in closely with the development of the COMECON bloc, and much of the resulting foreign trade is now in this direction.

Czechoslovakia is a country of small towns. There is no extensive and closely built industrial region, not even in Moravia, and manufacturing industries are carried on in small and scattered units of production (see page 324). Industries are located mainly in the hills of northwestern and northeastern Bohemia, in Prague and the region to the west of it, and in the Moravian Plain. Great dependence is placed upon brown coal, which is obtained from vast open cuts in northern Bohemia. This not only is compressed into briquettes and sold as fuel but also is the basis of the greater part of Czechoslovakia's output of coal; nevertheless, it is much smaller than its Silesian counterpart. The Czechoslovak metallurgical industries are concentrated in and around Moravská Ostrava and Karviná. Brno has more varied industries, which include textile manufacture as well as mechanical engineering.

TABLE 24-1. Chief Elements in Czechoslovakia's Foreign Trade, 1961 (In Millions of Korunas)*

Item	Imports	Exports
Live animals	4	13
Foodstuffs	1,317	590
Raw materials for the food industry	1,363	313
Other raw materials of vegetable and animal origin	2,142	837
Fuels, minerals, and metals	4,273	2,905
Chemicals, fertilizers, and rubber	1,286	423
Building materials	135	204
Machinery and equipment	3,426	6,567
Consumer's goods of industrial origin	624	2,881
Total	14,570	14,733

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1962.

* Note that in its classification of goods entering the foreign trade Czechoslovakia does not use the internationally accepted code.

Introduction to Southeastern Europe

25

Southeastern Europe is as indefinite and ill defined as Central. It is here taken to embrace Hungary, Romania, Yugoslavia, Albania, and Bulgaria. Much of the area which comprises these countries is sometimes referred to as the "Balkans." All of them adopted a Communist form of government in the years following the Second World War, and although Yugoslavia in 1948 and Albania more recently have broken away from Soviet control, the other three countries remain members of COMECON and subscribe to the Warsaw Pact.

The five countries have much in common in addition to their similar fates in the last 20 years. All were, until agriculture became collectivized, predominantly peasant countries, and until the recent move toward industrialization, agriculture was the most important occupation. All were to a greater or lesser degree overrun by the Turks, and all suffered from the prolonged wars whereby Turkish rule was ended in southeastern Europe. Too weak to pursue an independent foreign policy, these countries after their achievement of independence became the pawns of Germany, France, and now the Soviet Union in their power politics.

In terms of physical geography also, they have much in common. The

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At the Slovak town of Bratislava the Danube flows across the low ridge which, but for this gap, joins the Carpathian Mountains with the Alps. A few miles downstream the Danube enters Hungary. The hills draw back on each side, and the river flows for about 130 miles across an almost treeless plain. This is the Little Alföld. Another hilly ridge, the Bakony Forest, stretches north-eastward from the Alps to join the Slovakian Mountains. The Danube cuts across these hills between Esztergom and Budapest, where a hydro-electric installation is to be built. The hills again retreat, and the Danube enters the Great Hungarian Plain. This is the Great Alföld, broader, flatter, and drier than the Little Alföld, which was crossed between Bratislava and the Bakony Forest. It is the only large area of steppeland in Europe west of the Ukraine, though the steppe conditions are probably man-made rather than natural. Here, some 15 centuries ago, nomadic peoples from the Russian steppes found a temporary home suited to their pastoral way of life. They were followed by later invaders from the steppes, the Avars and then the Magyars, the last of whom settled in this region. Magyar blood flows in the veins of the Hungarians today, and their language remains that brought in by these nomadic people more than a thousand years ago.

From the north the Danube receives the Tisza (*G: Theiss*), which drains the Carpathians. The Drava (*G: Drau*) enters from Austria. The Sava, rising in the Slovene lands of northern Yugoslavia, collects a number of tributaries from the Dinaric Mountains before reaching the Danube at Belgrade (*S-C: Beograd*). A few miles below Belgrade the Danube is joined by the Serbian Morava, whose valley provides a corridor southward into the former kingdom of Serbia and thence by way of the Vardar Valley to the Aegean Sea.

Fifty miles to the east of Belgrade the Hungarian Plain is bounded by the mountains of Romania and Bulgaria. The Carpathian Mountains of Slovakia are continued eastward and then south-eastward through Romania. The line of these mountains then turns abruptly to the west and continues as the Transylvanian Alps, then curves to the south and crosses the Danube, and again

assumes a west-to-east direction as the Balkan Mountains (*Bulg: Stara Planina*) of Bulgaria. The section of this range which lies between the Transylvanian Alps and the Balkan Mountains is lower than the rest, and here the Danube breaks through the barrier in a deeply incised valley, almost 80 miles in length, which at its deepest and narrowest is known as the "Iron Gate." Here the river is navigable only with difficulty, and work has begun on a dam, built jointly by the Yugoslav and Romanian governments for the purpose not only of regulating the river's flow and improving navigation, but also of generating electric power.

Below this barrier the Danube again enters a plain reaching from the mountains to the Black Sea: on the north of the river, the plain of Walachia, rising to the Transylvanian Alps; on the south, a narrow belt of lowland between the river and the Balkan Mountains. On the south of the latter, and reached by passes from the valley of the Morava as well as from the Danube Valley, is the plain of the Maritza, the heart of Bulgaria. South of the Maritza Plain are the Rhodope Mountains, separating Bulgaria from the plains of Macedonia and Thrace.

Some 300 miles below the gorge of the Iron Gate the Danube curves to the north and then resumes its eastward course toward its delta. Enclosed by this bend of the lower Danube is the Dobrogea, a low chalk plateau. North of the lower Danube, following the curve of the Carpathian Mountains, is the hilly province of Moldavia, which becomes more level and more open as it passes eastward into the steppes of Russia.

PEOPLES AND LANGUAGES

The Danubian and Balkan countries have a greater variety and confusion of language than any other area of Europe. The basic language may be regarded as Slavic, with a Romance survival in the mountains of Romania. Ural-Altaic languages, brought into this area by invaders from Asia, have given rise to Hungarian, and have influenced Bulgar. German, brought by invaders from the

existence. The extent of good agricultural land is small; there is little coal, and the petroleum of Romania is one of their most valuable fuel resources. Reserves of metalliferous minerals are of very limited extent, and only bauxite, found in Hungary and Yugoslavia, is really abundant. Yet the poverty of the region does not spring wholly from its lack of natural endowment. The Scandinavian countries are no better off materially but have evolved a very much higher standard of living. The region lacks capital. The incentive to save has been reduced by recurring wars which destroy savings, and the ability to accumulate capital is reduced by the ineffectiveness of human labor.

The five countries considered in this part of the book have together a population of about 73.3 million. After the Second World War, about 70 per cent was engaged in agriculture, and only 12 per cent in manufacturing industries. Hungary and Yugoslavia were the most industrialized; Bulgaria and Albania, the least. Agriculture was backward and inefficient; farm holdings were small and ill-equipped, and the standards of living among the lowest in Europe. Whatever measure be adopted—whether child-mortality rates, the number of automobiles and radios, participation in peasant cooperatives, or the adequacy of human diet—the living standards of the Danubian countries, with Greece and Albania, appeared far below the average for Europe as a whole.

It is clear that poverty, such as existed in these countries, did not allow the peasant to invest and accumulate capital, and he was always too poor a risk for anyone to lend to him except the village moneylender and that at an exorbitant rate of interest. The land was grossly overcrowded, and the pressure on the land was greatest in the poorest countries. Table 25-1 gives an estimate of the agrarian population before and after the Second World War per 100 acres of farmland.

In those countries where the greatest dependence is placed on agriculture, agriculture is least productive and most backward and the rural overcrowding is the most serious.

The whole of this was a run-down region. It was obvious that a heavy investment of capital in transport and communications, in irrigation, in

TABLE 25-1

	1930-1939	1945-1962
Hungary	24	26
Yugoslavia	42	45
Romania	30	no date
Bulgaria	33	37
Greece	48	43

the improvement of seeds and stock, in the provision of fertilizer, and in the improvement of the level of rural education would be required. It was also obvious that putting such developments into effect would leave a large surplus of labor. Alternative employment, perhaps in manufacturing, or else some opportunity for emigration would need to be provided.

The German solution for the problem of this region lay in taking its farm surplus and supplying it with factory goods. Applied wisely, such a policy could have led to at least an amelioration of conditions here. The Germans, however, exploited the region, taking its surplus production of foodstuffs and minerals, and supplying it with goods which could not be of much value in the development of the region.

The remedy currently being applied in this region consists in (1) the industrialization of the whole area on a massive scale, and (2) the collectivization and mechanization of its agriculture (see page 58). For neither of these is southeastern Europe particularly well suited. Natural resources are very limited in extent, and, as we have already noted, the region as a whole is short of technically trained and even of moderately skilled personnel. The results that will be noted in the following chapters have been achieved only by injecting Soviet capital, by forcing investment savings by the local population, and by supplying industrial raw materials—mainly from other parts of the Communist bloc—on a large scale.

Hungary is technically the most advanced of this group of countries, because it started from a very much higher base and possessed also a relatively well-educated and technologically equipped population. Bulgaria and Albania, for the opposite reasons, remain the least advanced.

As a result of these developments, all the

mountains of the Alpine system form a kind of skeleton extending through all five countries. All except Albania are crossed or bordered by the Danube which, with its tributaries, drains by far the greater part of the region (see page 11) and constitutes a kind of artery threading its way through the rocky skeleton of the mountains.

THE DANUBE

From its source in the Black Forest of southwestern Germany the Danube flows eastward for 1,725 miles to its mouth in the Black Sea. It flows through or past the territory of no less than seven separate states. Its source is on the borders of western Europe, within 40 miles of the Rhine; its mouth is on Europe's eastern frontier. It flows between mountains for much of its course, and nowhere, except in Hungary, are they far distant from its banks. The Danube forms a kind of corridor by which people from southeastern Europe and the borders of Asia have sought to move northwestward. Within historical times Huns, Avars, Magyars, and Turks have come this way.

Germanic peoples from the northwest have expanded down the Danube Valley, forming settlements and creating empires. Vienna is the focal point in the upper Danube Basin; for a thousand years now it has stood firm in defense of the West, though the brunt of the attack has usually been borne by its neighbors to the east, Bratislava and Budapest.

The Danube does not today constitute a highway of commerce as important as its location and history might suggest. Its upper course, above Vienna, is too swift and too winding to be easily navigable. Below Vienna it is more easily navigable but is still not well used. If the Danube were connected by canal with the Rhine, as it will be within a few years, it is probable that commerce might be stimulated by the exchange of goods between Germany and eastern Europe. Navigational facilities on the Danube have in the past been controlled by an international commission. Though still international in name, this Danube Commission is now in effect a Russian agency, and the political differences between West and East limit yet more the flow of traffic along the river.

FIGURE 25-1. The countries of southeastern Europe.



TABLE 25-4. East European Agricultural Production (In Thousands of Metric Tons)

Country	Wheat			Rye			Corn*	
	1939	1948-1952	1962	1939	1948-1952	1962	1948-1952	1962
Hungary	2,067	1,909	1,959	724	732	233	2,068	3,240
Romania	1,371	2,486	4,054	91	162	75	2,369	4,932
Yugoslavia	1,887	2,171	3,514	211	248	169	3,078	5,270
Bulgaria	1,878	1,776	2,086	219	240	49	782	1,556
Albania	50	89	98†	3	9	7†	108	164†

* No comparable data for 1939.

† 1961 data.

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west, was carried down the Danube Valley and was spoken by isolated groups until recently. The Slavic language was in reality a group of many closely related dialects. The northern group, Polish, Czech, and Slovak, is not spoken in the area now under consideration. They were separated by the German of Austria and the Magyar of Hungary from the southern Slavonic languages. The latter are Slovene, spoken in the upper valley of the Sava; Serbo-Croat, the language of the greater part of Yugoslavia; Bulgar, a Slavic language which has absorbed some words of Asiatic origin; and Macedonian, a language which is basically Slavic with an admixture of Greek and Turkish.

The present pattern of peoples and languages had assumed approximately its present shape by the sixteenth century, when the Turks invaded Europe and conquered most of the area under consideration. The Turks reached Vienna in 1529 and again in 1683. They submerged the Hungarian Plain and invaded Walachia, Moldavia, and even southern Poland. The mountains of Bosnia, Montenegro, and Albania offered a natural obstacle to the Turkish invaders, and never wholly succumbed to the Turks. Though the Turkish overlordship was admitted, the more remote and inaccessible areas were, in practice, relatively free of Turkish interference. The Turks were not numerous enough to settle their vast Balkan empire; they could scarcely garrison and govern it. They made up for their numerical weakness by the harshness and arbitrariness of their rule. They relied upon fear rather than upon good government in order to maintain order and peace. The oppressive and corrupt rule of the Turks, lasting in Bulgaria, Macedonia, and parts of Yugoslavia for over 500 years, is one reason for the backwardness of this region today.

The Turks were expelled first from the Danube Valley, then from the Balkans. The Hungarian Plain was conquered by the Austrians during the eighteenth century. The Serbs then revolted at the beginning of the nineteenth century. The Austrians occupied the more northerly Slav provinces of Slovenia and Croatia. The Romanian principalities of Walachia and Moldavia established their inde-

pendence in the mid-nineteenth century and united soon afterwards to make the kingdom of Romania. The Bulgars revolted again in the 1870s and, with Russia's help, created an independent principality of Bulgaria, which a few years later extended its frontiers southward at the expense of the Turkish Empire. Until 1912 the Turks continued to hold a large area in the southern Balkans, including Albania, much of what is now southern Yugoslavia, and northern Greece. In the first Balkan War of 1912 they were driven from this territory and were left with only the small foothold of Turkey-in-Europe.

The expulsion of the Turks prepared the way for fierce feuds between the peoples of the Balkans. The limits of each cultural group were far from precise. Each cherished claims, based upon the medieval extent of its territories before the Turkish invasion and conquest, to the lands of its neighbors. Each could offer good economic reasons for the annexation of some city or some piece of territory, and at least until the First World War Germany and Russia each used the Balkan state as pawns in the larger game of politics. Since 1918 the rival nationalisms of the Balkans have become more intense. The alliances between France and Yugoslavia and between Czechoslovakia and Romania, and the Italian and later the German alliance with Hungary and partiality toward Bulgaria deepened the rift and contributed very materially to the war of 1939 to 1945. Today the mantle of the Soviet Union is spread over all these lands, with the exception of Yugoslavia and their nationalisms are subsidiary to the ambitions of the U.S.S.R. Yugoslavia alone has rejected the Russian discipline.

The Danubian countries have a common heritage from the long period of Turkish domination and misrule—their poverty and backwardness. The wars which accompanied the rise of the peoples of southeastern Europe to form nation-states caused further destruction. None of these countries is naturally well endowed, and the mountainous terrain makes transport and communications difficult. Many areas have had, of necessity, to live in semi-isolation from the outer world, self-sufficing and self-contained, at a very low level.

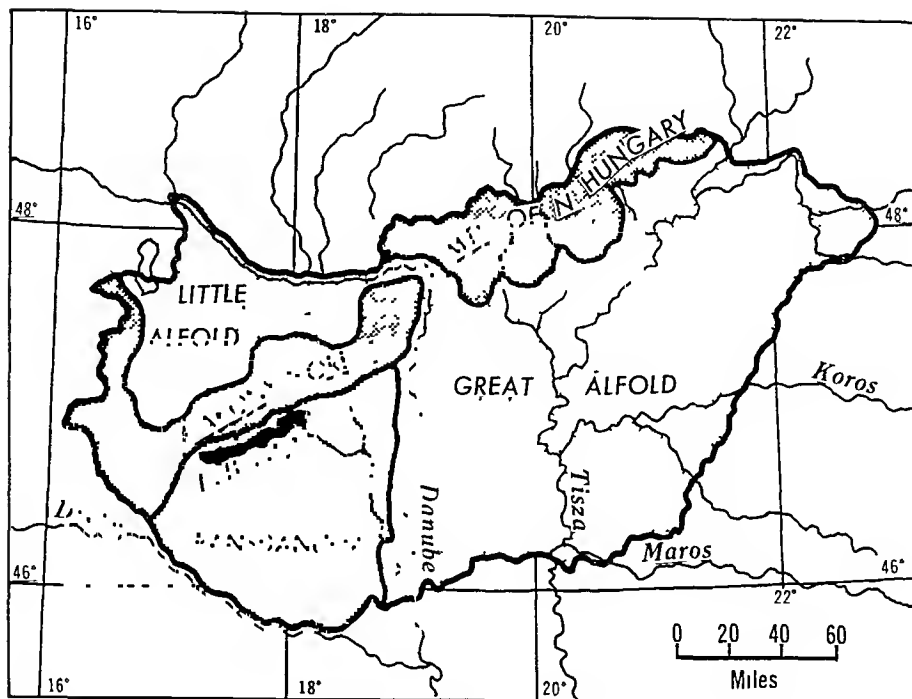


FIGURE 26-1. Hungary: landform regions.

Hungary, in which Hungarians had been greatly outnumbered by minority peoples, now became an almost exclusively Hungarian or Magyar State. The surrounding mountains, on which it had depended for forest products and certain minerals, were cut off from it, and in the Hungarian view the unity of the Hungarian Basin and the continuity of Hungarian history were violated.

The recovery of the lost provinces became the only fixed object of policy between the two world wars, and Hungary was eventually rewarded for hitching her destinies to Hitler by the restoration of the plains of southern Slovakia, of sub-Carpathian Russia, or Ruthenia, and of the northern part of the Romanian Transylvanian Basin. In 1944-1945, these territories were again lost, and Hungary was again reduced to the boundaries she had been given by the Treaty of Trianon of June, 1920. The only difference is that on three sides Hungary's neighbors are Communist countries, and her irredentist hopes are suppressed, if perhaps only temporarily, by Soviet pressures.

LITTLE ALFÖLD (H: Kisalföld)

The land is not completely flat. Its low, swelling hills are covered with a dusting of loess. Most of the region is drained by the Rába (G: Raab) and its tributaries, which have left gravel terraces along the gentle slopes of their valleys. There are large areas of low-lying swampy land, notably the Hanság marshes, which border the Fertő (G: Neusiedler See), but much of this region is fertile and intensively cultivated. It attracted German settlers from the west, and though Magyar in speech, it is a region of very complex racial origins. Summers are hot, and winters very cold. Rainfall shows a summer maximum. Wheat, maize, and sugar beet are grown, and vineyards are planted on the sunny slopes. The region is one of compact and rather prosperous villages, and of small towns, such as Győr (74,000),¹ Sopron,

¹ The population in 1963 is given for cities of over 50,000.

countries of this group have come to be more closely dependent economically on the Soviet Union than they had formerly been on Germany. Table 25-2 shows how their trade is overwhelmingly with their fellow members of the Communist bloc. Only Yugoslavia, a Communist country which has been for over 15 years outside the group of countries directly controlled from the Kremlin, maintains any freedom of action.

In spite of the restrictions and the one-sided development that this dependence implies, economic growth, as expressed in the rising volume of production, has been very impressive indeed. These countries are becoming industrialized, though the pattern of industrial development tends to be one which fits in best with the Communist model and with Soviet plans, rather than with the resources and needs of the countries themselves. Some countries, notably Romania and Albania, have objected to this economic dictation from without, and have attempted with some

success to modify their economic plans—to establish objectives and to build industrial plants geared to their own conception of their national needs. Table 25-3, showing the expansion of production of certain key commodities, illustrates this speed of growth.

Agriculture has been collectivized in all these countries except Yugoslavia, where only a very small proportion of the agricultural land—less than 3 per cent—is in the socialized sector. The net result of these changes and also of the extensive mechanization of agriculture has been a large increase of food production in relation to the labor input, but the actual volume of food produced has not increased in proportion even with the growth in population, and in some respects it has diminished. Food production has increased significantly only in Yugoslavia, where collectivization has made the least progress. Elsewhere agricultural expansion has clearly been sacrificed to industrial growth.

TABLE 25-2. East European Foreign Trade (1962)

Country	Percentage of total trade with U.S.S.R.	Percentage of total trade with other bloc countries	Percentage with all bloc countries
Hungary	30	37	67
Romania	41	26	67
Yugoslavia	6	16	22
Bulgaria	53	29	82
Albania	53	38	91

TABLE 25-3. East European Economic Expansion (In Thousands of Metric Tons)

Country	Steel			Cement		
	1939	1948	1962	1939	1948	1962
Hungary	733	770	2,333	395	552	1,733
Romania	267	353	2,451	531	657	3,489
Yugoslavia	220	368	1,595	663	1,169	2,518
Bulgaria	...	...	423	194	378	1,893
Albania	...	...	.....	...	.....	120

Little remains of the open, grassy *Puszta*; it has been colonized, and is now dotted with small farms, with their well sweeps and few shade trees. This scene is west of Debrecen. (N. J. G. Pounds.)



THE GREAT ALFÖLD (H: Nagy Alföld)

The Great Hungarian Plain, or the “Puszta,”¹ as it was once called, has a monotony which is absent from the Little Alföld. Its surface is in general level and covered locally at least with loess. In places, particularly between the Danube and the Tisza, are areas of windblown sand dunes. The drifting sands block the drainage, and the land is dotted with small lakes. To the east and north, beds of gravel have been laid down by torrents as they issue from the encircling ranges of mountain. The Danube and the Tisza flow sluggishly across this flat region in valleys that are sunk but little below the level of the plain. The Danube breaks up into many channels, separated one from the other by marshy islands. The Tisza was formerly notorious for the sharp meanders of its course and their frequent changes, until the river was straightened somewhat during the nineteenth century. All the rivers are liable to flood violently, and along their banks are broad belts of damp land, too wet to cultivate, avoided by settlements, and difficult to cross.

The climate is one of cold winters, when ice floes drift down the Danube and navigation is brought to a halt, and very hot summers, when

the shimmering mirage beguiles the traveler. Most of the rain falls in the summer, when thunder and hailstorms frequently occur. The climate of the Hungarian Plain is moist enough for it to have been forested with hardwood, deciduous trees, though locally, on the sandy soils, the woodland was probably quite thin. The trees were destroyed in the course of the many invasions and wars that this region has known, and much of the Great Alföld was reduced to an artificial, or man-made, steppe. Most of the plain has now been brought under cultivation, though areas of grassland remain today in the sandy region which lies to the east of the Tisza, grazed by herds of dun-colored long-horned cattle. This region is known as the “Hortobágy.” Wheat, maize, and rye are the commonest cereals, and sugar beet is grown. Vineyards are planted over many of the sandy hillocks. In recent years agriculture has been extended into less-favorable areas, and here hamlets and even isolated farmsteads have appeared. But the rural settlement of the Hungarian Plain is still for the greater part in large villages, which in size and population resemble towns. This is generally held to have sprung from the insecurity which has characterized the plain and from the danger to which isolated settlements or even small groups of settlements have been exposed. The Hungarian farmstead is typically a low, white building roofed with thatch or with wooden shingles, with dwelling house, stable, and barn under one roof. Close by is the long counterpoise of the well, upon which

¹ This term, which derives from a Slavic root meaning “waste” or “empty” land, was originally used to denote the steppelike grasslands which formerly covered the plain.

Hungary

From the beginning of the tenth century until early in the sixteenth, the kingdom of Hungary flourished in the plains which bear its name, and extended its boundaries approximately to the line of the encircling mountains and hills. In 1526 this Hungarian State was destroyed by the Turks, and when, some two centuries later, the Turks were expelled, the territory was annexed to Austria. Not until 1867 was there again a separate and independent kingdom of Hungary. It remained, however, linked to the empire of Austria in the Dual Monarchy, sharing with it the person of the King-Emperor, who, for most of this period was the long-lived Franz-Josef. The defeat of Austria-Hungary in the First World War led both to the separation of its two parts and to their great reduction in size. Hungary was trimmed to the state we recognize today.

Modern Hungary is essentially a plain state; most of its extent is made up of the low-lying, level Alföld, interrupted only by the hilly ridge of the Bakony Forest and the Bükk and Matra Hills in the north of the state. It lost territory on each side. Czechoslovakia, Romania, Yugoslavia, and even Austria benefited from the dismemberment of Hungary. The kingdom of

among the cultivators of the smaller holdings, was high. On the other hand, the crop yields were higher for most crops than in other Balkan countries, and the products of Hungarian agriculture constituted over half the total exports of Hungary.

Hungary has few resources for the development of industry. There is a very small coalfield near Pécs producing only about 3.1 million tons of coal a year. Lignite production has increased very rapidly, and now amounts to about 25,104,000 tons a year; there are reserves of bauxite, the output from which in 1961 was 1,358,000 tons. The Hungarian rivers are too sluggish in their lower courses to be used for power generation, though a dam has been built on the upper Tisza, and a very large hydroelectric undertaking is projected at Vác, where, above Budapest, the Danube flows around the northern end of the Bakony Forest. In terms of the value of goods turned out, the food-processing industries predominate, followed by the metallurgical and textile, which are small and very far from satisfying the requirements of Hungary. The trade of Hungary, despite the industrial development of recent

years, still consists largely in the export of foodstuffs and the import of manufactured goods.

TABLE 26-1. Chief Elements in Hungary's Foreign Trade, 1960 (In Millions of Exchange Forints)

Item	Imports	Exports
Live animals	23.6	20.8
Foodstuffs	595.3	2,005.0
Raw materials for the food industry	701.0	520.7
Other raw material of vegetable and animal origin	2,587.7	577.8
Fuels, minerals, metals	3,641.1	1,933.2
Chemicals, fertilizers, rubber	1,155.1	306.6
Building materials	118.1	63.2
Machinery and equipment	4,050.1	4,663.8
Consumers' goods of industrial origin	631.2	2,814.4
Total	13,485.2	12,905.5

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1961.

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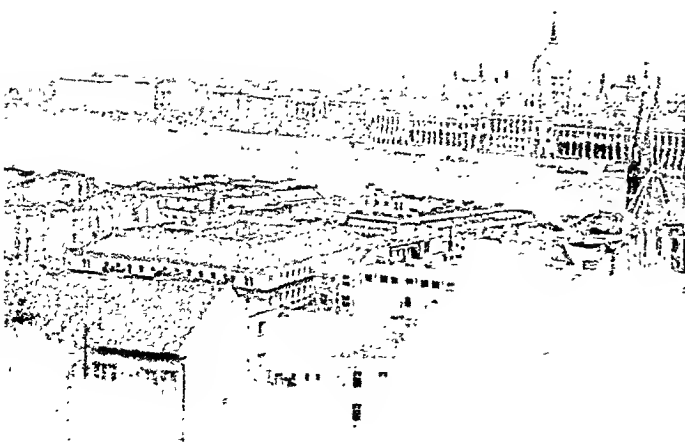
and Szombathely (57,000), which serve as markets for the grain and fruit of the area.

BAKONY FOREST

This limestone ridge bounds the Little Alföld on the southeast. Its highest peaks do not greatly exceed 1,500 feet, but it is well wooded and contains the most extensive areas of forest in Hungary. Population is relatively sparse, and settlements few. Toward the southwest the hill ridge drops in height toward the valley of the Drava. Toward the northeast it is crossed by the Danube. Beyond the deep valley the line of the Bakony uplift is continued in the broken hill masses of Mátra, Bükk, and Hegyalja, all wooded and somewhat difficult of access despite their generally low altitude. A number of market towns lie along the southern margin of these hills at their junction with the Great Hungarian Plain. Veszprém, Gyöngyös, Eger (34,000), Miskolc (144,000), and Tokaj are the largest. The lower slopes of the hills which partially surround these towns are clothed with vineyards, for which the hot summers and the southerly aspect are particularly suitable. Here are made the tokaj wines. In the Bakony region are to be found most of Hungary's quite extensive reserves of bauxite, the ore from which aluminum

is obtained. It is mined, but much is exported to countries better endowed with sources of electric power for refining.

Largest and most important of these towns which lie at the junction of hill and plain is Budapest (1,875,000) itself. The fortress and palace of Buda were built high up on the right bank of the Danube, where spurs of the Bakony Forest reach out to the river and command the approaches to the gap through the hills. Below Budapest the Danube breaks up into many channels with low, marshy banks, across which movement is difficult. On the low flatland opposite the hill of Buda developed the commercial city of Pest, terminus of routes which fanned out across the Great Alföld. Budapest was formed by the merging of the military and administrative town on the hill with the commercial city on the plain. It is now by far the largest city in Hungary, with almost a fifth of the total population. It is also the most important center of industry, with important manufactures of machinery and metal goods, electrical equipment and chemicals. The northern part of Csepel Island, enclosed by the Danube, is industrially the most developed part of the city. Forty miles downstream from Budapest is Dunaújvaros, which has been developed in recent years as a center of iron smelting and steelworking.



Budapest, the Hungarian capital, is a twin city. On a hill rising above the right bank of the Danube lay Buda, seat of the King and headquarters of the church. Across the river grew up the sprawling, commercial city of Pest. In 1872 these two were joined to make Budapest, and are today linked by an impressive number of bridges. The view is of Pest from the hill of Buda. In the middle distance is the nineteenth-century parliament building. (N. J. G. Pounds.)

Szekely), form a compact community of about 1,653,700 in the northern part of Transylvania, where they enjoy autonomy within the Romanian republic. There are also Magyar communities near the western boundary of the country. The German settlers also live in Transylvania, but mainly to the south of the Szeklers. They have been greatly reduced by migration—some of it forced—back to Germany at the end of the Second World War, and they do not today number more than 395,000. Add to these minorities the Jews, Ukrainians (Ruthenians), Russians, Tartars, Turks, and Bulgarians, and one has an ethnic confusion unequalled in Europe.

The Romanian State came into existence in 1862, when the two principalities of Walachia and Moldavia, Romanian but under Turkish domination, were joined together. The territory of the state was extended to include the Dobrogea, Transylvania, the border of the Hungarian Plain, and the Russian province of Bessarabia. During the Second World War Romania lost Bessarabia and a part of its most northerly province of Bukovina, which were annexed by the Soviet Union, and a small part of Dobrogea, which passed to Bulgaria.

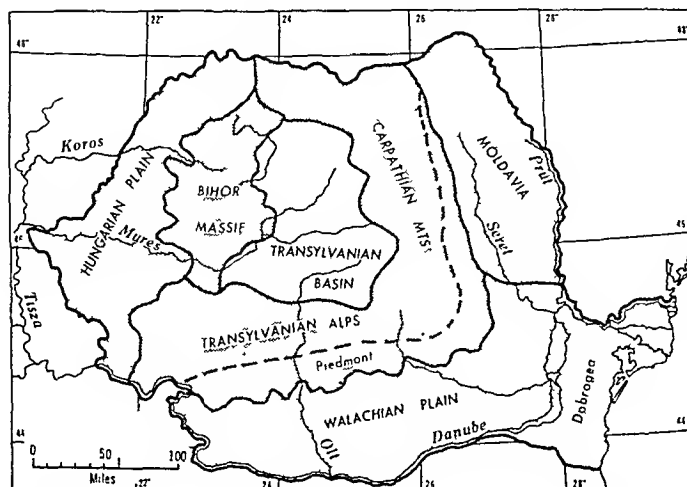
The relief and structure of Romania are also very much more complex than those of Hungary. The Carpathian and Transylvanian Mountains form a kind of axis in their curving course from the Russian border to the Iron Gate. Within the

curve which they form lies the upland basin of Transylvania and, forming the center of the circle of which the mountains are an arc, the Bihor Mountains (*Rom*: Bihorului). Outside the sweep of the mountains are the plains and plateaus of Walachia, Moldavia, and Dobrogea.

CARPATHIAN AND TRANSYLVANIAN MOUNTAINS

The Carpathian Mountains narrow around the headwaters of the Tisza, but southeastward they expand again into the massive range of northern Romania, in many parts over 6,000 feet high. The relief is strong, the peaks are fretted, and the valleys deepened by ice action. The climate is severe in winter, and snowfall is heavy. Summers are cool, and the growing period for plants in some of the Carpathian valleys is less than 150 days in the year. Much of the region is thickly wooded, chiefly with conifers. The region is drained toward the west by the tributaries of the Tisza, the Someșul (*H*: Szamos) and the Mureșul (*H*: Maros) and eastward by the Siretul, which joins the Danube. The range becomes lower toward the south, where there are a number of easy routes across the mountains. The Carpathians are densely wooded. Population is sparse and settlements rare in the more rugged northern part of the range. Population is greater toward the south,

FIGURE 27-1. Romania: landform regions.



the farmstead depends for water. In the large villages of the plain the farmsteads lie characteristically parallel to one another and at right angles to the road or street.

The towns of the plain are relatively large, but most of their inhabitants work on the land. They combine the functions of agricultural village and market town. The largest are Kecskemét (69,000), between the two rivers; Szeged (105,000), near the Tisza; Debrecen (137,000), on the edge of the Hortobágy; and Békéscsaba (51,000) and Hódmezővásárhely (53,000), in the rich grainland of eastern Hungary.

SOUTHWESTERN HUNGARY

The region of southwestern Hungary, between the Bakony Forest and the Danube, is a rolling, and in parts even hilly, country. Its forest cover has largely been cleared, and much of the land is now under cultivation. The region was exposed, like the Alföld, to the attacks of the Turks, though it was ravaged less thoroughly. The same nucleation of settlement is apparent, though villages are

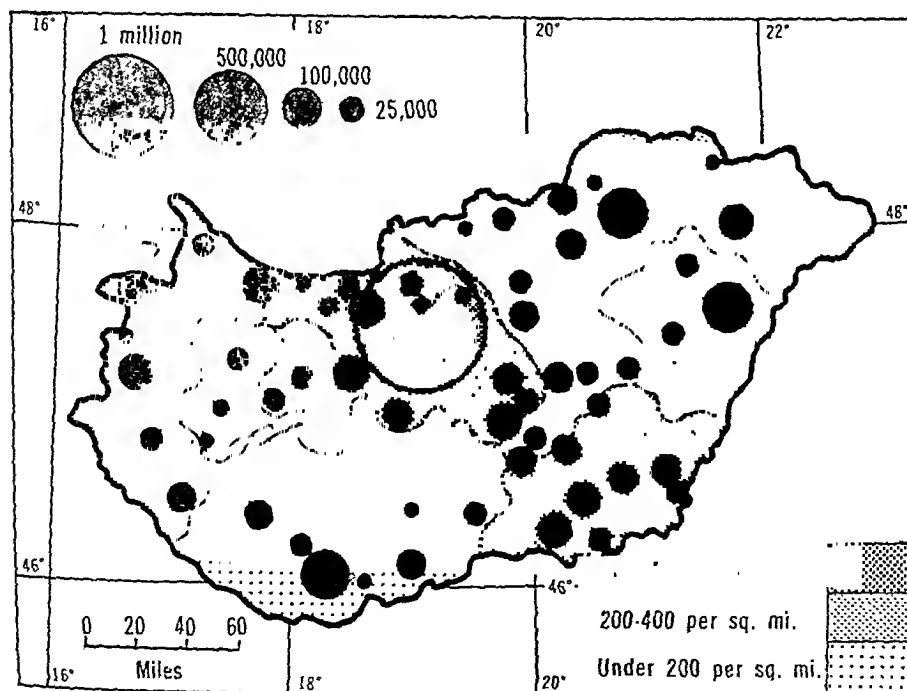
smaller than on the Great Alföld. The type of agriculture resembles that practiced in other parts of Hungary, and the towns are merely overgrown villages. The largest of them are Pécs (125,000), which lies on the southern margin of the Mecsek Hills and close to Hungary's only important coal-field, Kaposvár, and Székesfehérvár (60,000), at one time capital of the Hungarian State.

ECONOMIC DEVELOPMENT

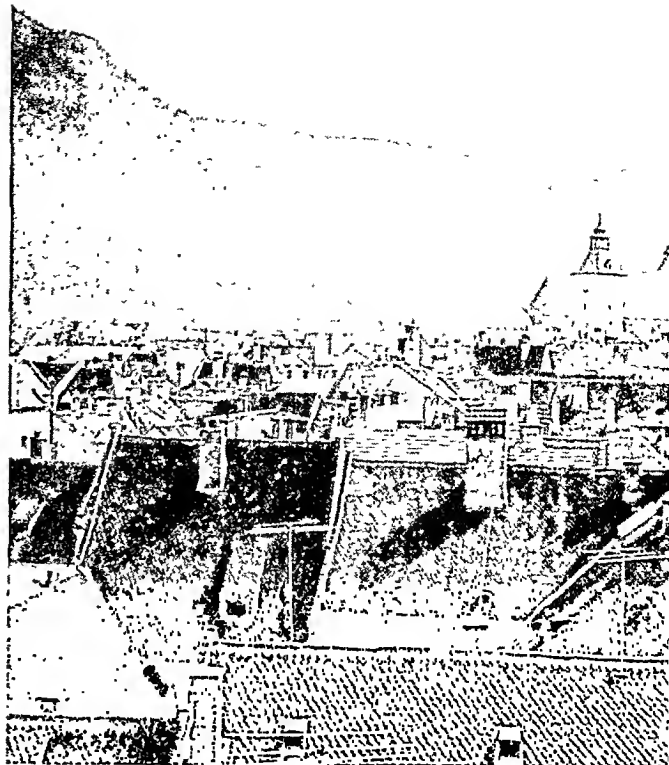
Hungary has (1962) a population of over 10,061,000. About 36 per cent of the employed population is engaged in agriculture, and about a quarter in manufacturing and mining industries; but the latter category is expanding steadily.

Hungary was formerly noteworthy for the existence of great estates, worked by landless laborers. After the First World War some of these were broken up, and it appears that this process has been completed since the end of the Second World War. Before the Second World War many of the holdings were uneconomically small and much divided, and rural indebtedness, especially

FIGURE 26-2. Hungary: distribution of population and larger cities.



Brasov, the German Kronstadt, is the largest city of Transylvania. It was founded by German settlers in the Middle Ages, but the predominant language today is Romanian. It is dominated by its medieval church and overlooked by the forested Transylvanian Alps. (N. J. G. Pounds.)



gentle slope are cleared and cultivated. There are large, compact villages, the houses built of wood, single-storied, with steep roofs of straw or wooden shingles, each with its small courtyard, stable, and barn.

The severity of winter is intensified by the altitude of Transylvania and by the settlement here of cold air masses in winter from the surrounding mountains. Snow may lie for 4 months or even longer. Summers are hot, but rainfall, except in thunderstorms, is slight. Despite this far-from-favorable climate the region has been settled from an early date, and its population today is descended from numerous immigrant groups. Most of the population is Romanian, and it was in the mountains bordering Transylvania that the Romanian people probably preserved their identity and maintained their independence during the Dark Ages of barbarian invasion. The Szeklers then settled in the valleys of eastern Transylvania, where they served as guardians of the passes across the Carpathians from Moldavia. Germans came down the Danube Valley and across the Hungarian Plain, and in Transylvania they founded their "seven towns" of Siebenburgen. Southern Transylvania became almost a German colony. Braşov (G: formerly Oraşul Stalin; G: Kronstadt; H:

Brassó, 131,000),¹ Sibiu (G: Hermannstadt; H: Nagyszeben, 99,000), and Sighişoara were in the main German towns. The city of Cluj (G: Klausenburg; H: Koloszvar, 165,000), the largest in Transylvania, was established in the Middle Ages as a German city. "There are long and straggling villages of a single street, a street that is a churned-up sea of mud, while the houses, which are large and separate like farmhouses, are built sideways with their end toward the road. These are not the characteristic villages of Romania where each house, however small, is a microcosm of present life, with individual granary and barn and wooden dwelling house rich in carving; these are Saxon villages with many characteristics of medieval German villages, only necessarily altered after eight hundred years of emigration."²

¹ The population in 1962 is given for cities of over 50,000.

² Sitwell, Sacheverell, *Romanian Journey*, London, 1938, p. 8. This description is still broadly true.

Romania

27

In both relief and climate, as well as in its ethnic composition, Hungary is one of the simplest countries in Europe; Romania by contrast is one of the most complex. Much of its area was conquered by the Roman soldiers of the Emperor Trajan, and the present-day Romanians claim to be descended from the Roman settlers of the second and third centuries A.D. This claim is, however, vigorously disputed, particularly by the Hungarians, who argue that the Romanian people are closely related to the Vlachs, and that they crossed the Danube and entered Romania during the Middle Ages. There are probably elements of truth in both these assertions. The Romanians speak a language which derives its structure from Latin, but has incorporated many Slavic and even Turkic elements. At the same time, however, Greek influences have been powerful. The Romanians were Christianized from Byzantium, and for a long time they used the Cyrillic alphabet, like the Bulgars and Serbs. Their adoption of the Roman alphabet during the nineteenth century has been a conscious attempt to strengthen their Latin heritage, and was accompanied by a movement to model their language on Italian.

In the midst of the Romanian peoples there have settled large numbers of Magyars and Germans. Most of the former, known as "Szeklers" (*H:*

administrative town and an industrial center with engineering, chemical, and textile manufactures.

The oil-producing district lies on the borders of the Walachian Plain to the north of Bucharest. Oil has been obtained for more than a century, but it was not until the later years of the last century that its development became significant. Romania is now the most important oil-producing state in Europe except the U.S.S.R. Its output before the last war was about 6,500,000 metric tons, only 2.4 per cent of the world production, but this has been greatly increased in recent years, with the application of modern methods of prospecting and extraction, and in 1960 reached 11,582,000 tons. The town of Ploëști (129,000) lies at the center of the Romanian oil field and is its largest and most important refining center. The only other city of significance in Walachia is the industrial town of Craiova (116,000), about 120 miles west of Bucharest.

MOLDAVIA

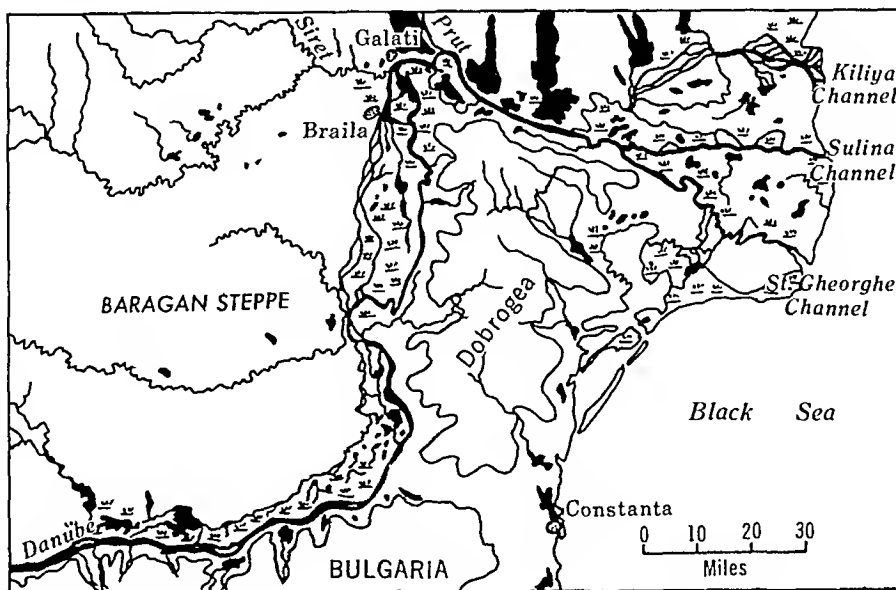
Between the Carpathian Mountains and the river Prut is the province of Moldavia. Its surface becomes lower toward the east, broken by a number

of high and sometimes severely eroded hills. The region has a climate of extremes, with severe winters and hot, dry summers. The higher land is wooded, but much of Moldavia is mantled with loess and is under cultivation. Cereal crops are the most important. Standards of cultivation have always been low, transportation undeveloped, and the marketing of agricultural surpluses difficult in the extreme. The relatively high degree of self-sufficiency among the peasants of Moldavia is reflected in the comparative lack of towns. Jassy (*R*: Iași, 125,000) is the largest, a poor, sprawling town in which a majority of the population was Jewish before the Second World War.

DOBROGEA

Between the lower Danube and the Black Sea is a low, chalk plateau. The natural dryness of the chalk surface is accentuated by the loess cover. The population is sparse, and the agriculture of the region is more pastoral than crop farming. On its eastern coast is the town and port of Constanța (151,000), which is linked with Bucharest by a railway that crosses the Danube by a great modern bridge at Cernavodă. North of Constanța the

FIGURE 27-2. The delta of the river Danube; the shaded area lies above 600 feet.



where the valleys are wider and agriculture more easily practiced. The Carpathians, it is claimed, served during the Middle Ages as a region of refuge for the Romanian people, and the area remains difficult of access. Roads are few, and in some parts the peoples still keep to themselves.

The Transylvanian Alps, which lie in an east-west direction, are higher and even more rugged than the Carpathians. The mountains are built of sedimentary rocks with a core of hard igneous rocks, which give rise to the highest as well as the most rugged relief. The Alps are breached in several places by transverse valleys. Near the center of the range the river Oltul, which rises within the Transylvanian Basin, breaks through the mountains by a deep, narrow valley, which is used by a railway, to reach the Danube. In the east is the straight, serrated ridge of the Făgăraș Mountains, and in the center, the Vulcan and Sebes Massifs, the highest and most "alpine" of the Transylvanian Alps. In the west are the lower hills of the Banat province.

The southern face of the Transylvanian Alps is abrupt and straight. The mountains give way suddenly to the plain. On the north their margin is less distinct. They drop through foothills to the undulating plateau of Transylvania. The population of the Transylvanian Alps is sparse and settled mainly in villages in the larger valleys and in the many small basins which occur within the range. Here, too, an Alpine pattern of transhumance continues to be practiced.

BIHOR MOUNTAINS

The crystalline massif of Bihor lies within the sweep of the Carpathian and Transylvanian Mountains. Its borders rise steeply from the surrounding lowlands. It is dissected by deep, narrow, and rocky valleys, and much of its surface is thickly wooded. Valley settlements are few and small, and at higher levels forest clearings provide summer grazing for the animals. Northern Bihor is a wild and forbidding region, but toward the south, the austerity of the region is somewhat moderated. The population is greater; agriculture is more important, and the occurrence here of small reserves of coal and iron ore has led to the development of a small metallurgical industry at Reșița.

TRANSYLVANIA

Between the arc of the Carpathian and Transylvanian Mountains and the Bihor Massif is the rolling upland of Transylvania. The region is one of low hills, carved from young, soft rocks, with higher hills, built of lava and other volcanic rocks, toward the east. The region is drained by the Someșul and Mureșul, which flow westward, respectively, to the north and south of the Bihor Mountains, toward the Tisza, and by the Oltul, which breaks through the barrier of the Transylvanian Alps to reach the Danube. The plateau of Transylvania is well settled. The higher land is often wooded, but the valley sides and areas of



The Transylvanian Alps are made up mainly of rounded and generally forested mountains, the upper slopes grass-covered and used for grazing. The photograph shows the Predeal Pass, through which the road and railway from Transylvania passes to Bucharest. (N. J. G. Pounds.)

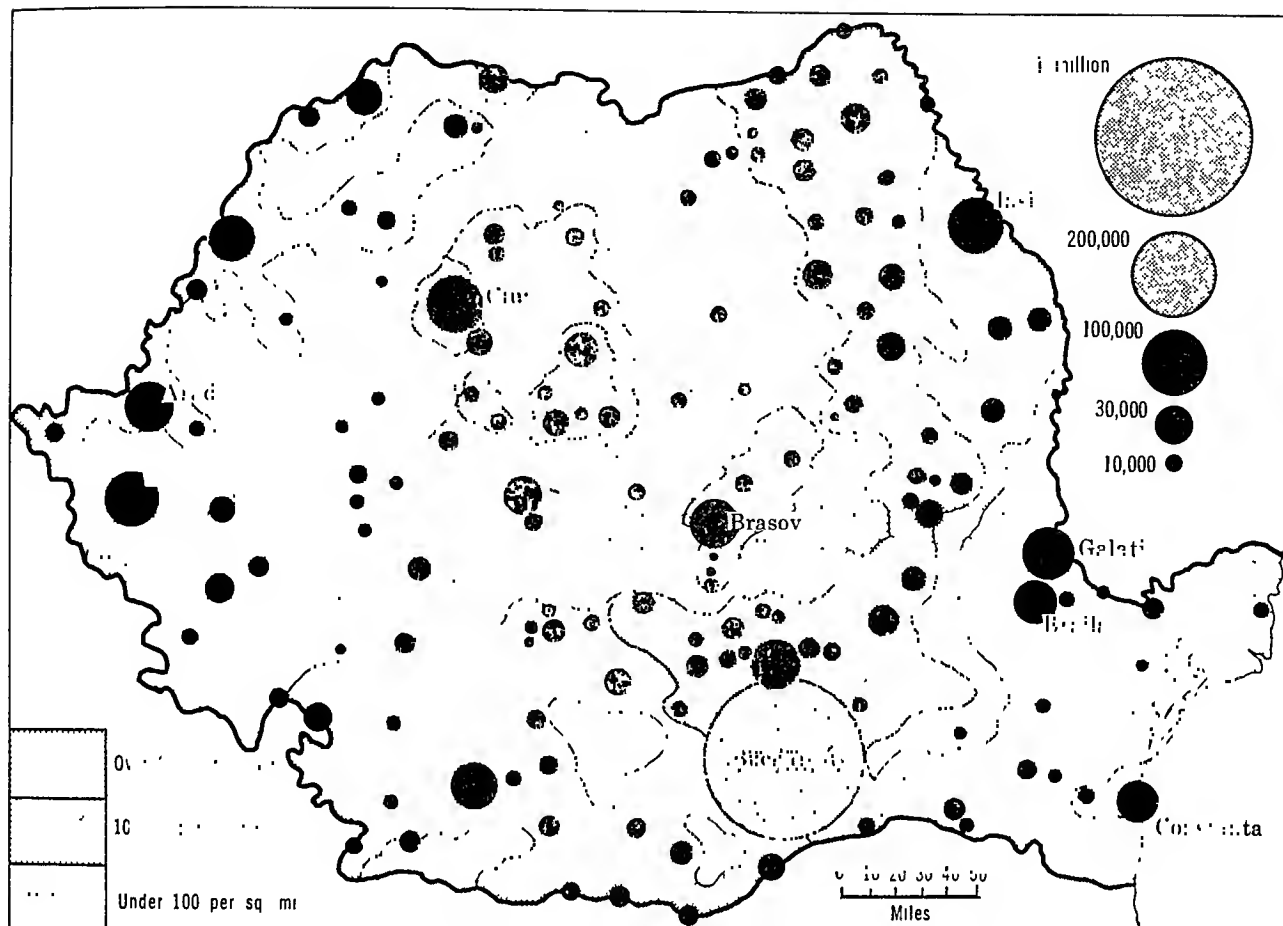


FIGURE 27-3. Romania: distribution of population and larger cities.

engineering processes were developed in the nineteenth century. Romania has a large number of small mineral deposits but, except the natural oil of Walachia, none that are large enough to afford the basis of modern industry. There are a number of small coalfields in the western parts of the Transylvanian Alps, and lignite is also worked in the Carpathian and Transylvanian Mountains. The total output of coal in 1962 was about 5.3 million tons, and that of lignite was less than 5 million. Iron- and steelworking have been developed close to the coal deposits, notably at Reșița and Hunedoara (52,000), but the total production of pig iron amounted to only 1,511,000 tons in 1961, and that of steel to only 2,451,000 tons. Now, however, a large, fully integrated iron and steel plant is being erected on the Danube

at Galați, and is expected to come into production in 1966. Much of its raw materials must of necessity be imported. Many of the factory industries that have been developed in recent years are related to the agricultural wealth of the country: flourmilling, sugar refining, brewing, sawmilling. These were the industries allocated to Romania in the economic planning of COMECON. The Romanian authorities, however, have been more ambitious and have demanded the right to broaden their industrial base. The Galați steel plant is indicative of this new trend in Romania's industrialization.

Means of communication are less developed in Romania than in almost any other European country. The railway network is poor, and only a very short mileage has doubletracks. The condi-

BORDERS OF THE HUNGARIAN PLAIN

A broad belt of the Hungarian Plain, from Satu Mare in the north southward to the Danube, was acquired by Romania in 1920 and most of it was retained through all the changes that have since taken place. The transition from hill to plain is abrupt, except in the valley of the Mureșul. Two contrasted environments and two different ways of life are brought close together: the lumbering, mining, and pastoral activities of the hills and the crop farming of the plains. The towns of the plain; Satu-Mare (*H*: Szatmar Nemeti, 63,000), Oradea (*G*: Grosswardein; *H*: Nagyvarad, 109,000), Arad, and Timișoara (*H*: Temesvar, 147,000), serve chiefly as market towns where are exchanged the products of east and west, of hill and plain. The plain itself is good farmland, where heavy crops of wheat and maize are gathered and horses, cattle, and sheep are bred. It is also the meeting place of Romanian and Magyar, with, in the towns, the remains of the once-large Jewish communities, which still pursue their traditional trading occupations.

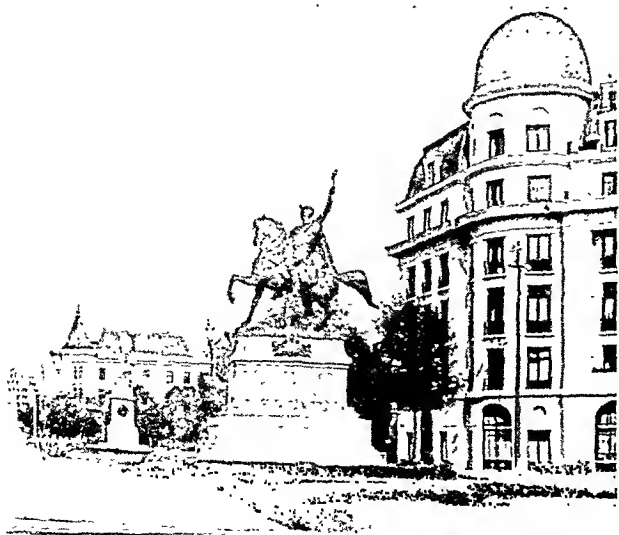
WALACHIA

Between the Transylvanian Alps and the river Danube is Walachia. The land rises gently from the Danube, here a broad stream with low, marshy banks on the Romanian side, toward the Transylvanian Alps. It is crossed by innumerable rivers which rise in the mountains and flow to join the Danube through valleys incised in the dry and

dusty plain. East of Bucharest (*R*: București, 1,354,000), the land becomes flatter and toward the Danube passes into the level, treeless Baragan steppe. These plains of eastern Romania mark the transition from the still moist and wooded lands of central Europe to the grasslands of Russia. Much of Walachia bears a thin covering of loess, which increases both the fertility and the dryness of the soil. There is little woodland, only patches on the hilltops. The land lies open and unenclosed, stretching to the skyline in gentle rounded hills and shallow valleys, without fence or limit. The villages are large and compact, usually sheltering in some hollow of the ground. Their agriculture is mainly crop farming—wheat and maize predominate—though sheep and cattle are reared in large numbers on the dry steppe.

There are numerous small towns along the course of the Danube. Some handle the grain trade of Walachia or the timber brought down from the mountains; some lie at crossings of the river. All are small, and most are only locally important. Brăila is the largest, a modern, rectangularly planned town, which handles a large part of the seaborne trade of Romania. Galați (110,000), a few miles downstream, lies where the Danube turns to the east to enter its delta, and a large iron- and steelworks is now being built. Like Brăila it handles part of the grain trade of Romania.

Bucharest grew up at a crossing of the marshy valley of the Dimbovița. It has almost a million and a half inhabitants, and is a spacious town with wide streets and good shops, a business and



The city center of Bucharest is well planned, with large public buildings and monuments to the heroes of Romania's past. (*N. J. G. Pounds.*)

Yugoslavia

The country of the "Serbs, Croats, and Slovenes" first appeared on the political map in 1918. It had been conceived during the stress of the First World War, when its three constituent peoples agreed that their political future lay only in collaboration with one another. Only one of these peoples, the Serbs, and not all of them, had previously known independence. The medieval Serb State had been destroyed by the Turks in the fourteenth century. Its successor, the modern Serbia, came into existence early in the nineteenth by revolt against the Turks. Its nucleus, the Šumadija, lay in the forested hills to the south of the Sava and Danube, and from here it expanded slowly during the nineteenth century and the early years of the twentieth, resisted by the decadent power of the Turks and the heavy hand of the Austro-Hungarian empire.

West of Serbia and close to the coast of the Adriatic Sea lay the barbaric little kingdom of Montenegro, which at the end of the First World War threw in its lot with Serbia in the new Yugoslav State. To the northwest lay the provinces of Bosnia and Hercegovina, inhabited by Serbs but since 1878 under Austro-Hungarian rule. Beyond were Croatia, which for much of its history had formed part of Hungary, and Slovenia, which had belonged to

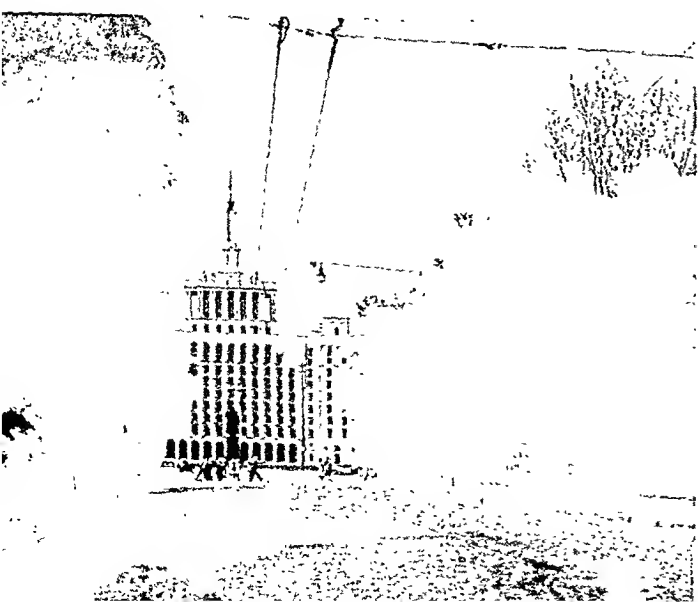
coast is flat and fringed with lagoons, which then merge into the marshy delta of the Danube. The Danube has three major distributaries. The most southerly, the St. Gheorghe Channel, is of diminishing importance. The center channel, the Sulina, is now the most used by shipping, and carries the greatest part of the discharge of the river. The delta is building forward comparatively rapidly and is now, excluding the Volga, the largest delta on the coast of Europe. Fishing is carried on amid the lagoons of the delta, well known as a haunt of wildlife, and the sturgeon is fished, in part on account of the extravagant delicacy, caviar, which is made from it.

ECONOMIC DEVELOPMENT

Romania is overwhelmingly an agricultural country. About half its population are peasants, engaged, until very recently, in working their small holdings by traditional methods. Romania, like all other countries of the "frontier" of Europe, was formerly characterized by the large estates of its great landowners. The measures of agrarian reform which were carried through in the years following the First World War greatly reduced their number, and those which survived were liquidated after the Second. Soon afterwards, however, the government instituted collectives (see page 58), and today about 95 per cent of the agricultural land is socially owned. Over much

of the country the peasant holdings, consisting of intermixed strips, have disappeared and been replaced by large fields, in which combines and tractors are making their appearance. The most productive lands are on the border of the Hungarian Plain and in Walachia. Here corn and wheat are the dominant crops. In Transylvania corn, favored by the summer heat, and rye are of greatest importance, and in the mountains and in parts of Moldavia and Dobrogea rye is the chief crop. Crop yields are low by European standards, and in the past the government of Romania has done little to improve standards of agriculture or of rural well-being. The cultivation of vineyards and orchards is carried on where the climate permits: on the south-facing slopes of the Walachian Plain and on the western and southern edges of the Bihor Mountains. Cattle are reared in most parts, both for their milk and meat and as draught animals. Sheep are numerous on the dry steppe of eastern Romania. The forested and sparsely populated mountain areas possess large timber resources. Conifers predominate at the higher levels, beech at the lower, and lumbering is an industry of considerable significance.

Modern factory industries are new, and their development has been very slight until recently. Ancient craft industries have long been carried on in every town: spinning, weaving, tanning, leather-working. In addition simple metallurgical and



Most of the larger cities of eastern Europe have been dignified in recent years by monumental public buildings erected in the heavy style which the Soviet Union has popularized. One of the largest is the Government Printing Building—which is more diversified than its name suggests—rising above the city of Bucharest. (N. J. G. Pounds.)

and absorbed most of the disputed minority groups. But in this region Italy and Austria proved to be too strong. Yugoslavia's claim to the port of Rijeka (*It: Fiume*) was resisted, and it was occupied by Italians and annexed to Italy. At about the same time, a plebiscite in part of Austria's southern province of Carinthia (page 304) went against Yugoslavia, and there remains today a small Slovene minority beyond the Karawanken Alps. The defeat of Italy in the Second World War, however, prepared the way for Yugoslavia's acquisition not only of Fiume but also of the Istrian peninsula and the Julian region almost up to the suburbs of Trieste.

The Yugoslav government had tried to rule the country as a unitary state; its ethnic division proved to be too intense; in 1939 a federal constitution was adopted, and in 1946 it was revised to bring it into closer accord with ethnic realities. Each of the major groups now constitutes a separate republic: Serbia, Croatia, Slovenia, Bosnia-Herzegovina, Macedonia, and Montenegro. Two areas in which the ethnic pattern is exceptionally confused, the Vojvodina in the north and Kosovo-Metohija near the Albanian border, are autonomous areas within Serbia. The similarity to the Soviet pattern of territorial division is obvious.

Yugoslavia is thus a state put together in modern times. It is a polyglot state, still far from having a national tradition, and its human com-

plexities are matched by its varied and irregular physique.

Yugoslavia consists of a region of plains and low hills in the north drained by the Danube; a mass of tangled hill country which forms the center of the country; the Dinaric Mountains which fringe the Adriatic coast; and the plains of Macedonia in the south.

SAVA VALLEY AND DANUBIAN PLAIN

The northern region of Yugoslavia resembles closely the adjoining areas of Hungary. Soft recent deposits cover an ancient mass of crystalline rock, which shows through its mantle of later deposits in a few places and forms the forested hills of Psunj, Papuk, and the Fruška Gora. The region is drained primarily by the Drava and Sava, right-bank tributaries of the Danube, and by the Danube and the Tisza. Along the rivers is a belt of lowland, marshy and liable to flooding. Away from the streams is a dry, loess-covered plain. This is fertile agricultural land and supports a dense population. The hilly lands of western Slavonia are the most densely populated. The more productive, flatter regions to the east, known collectively as the "Vojvodina," were exposed to the fury of the Turkish wars, and their economic development was inhibited. Though hamlets and isolated dwellings are now beginning to appear, most of the

The Alpine system sends spurs out into the Pannonian Plain. This scene is amid the rolling hills which extend eastward from the Karawanken Alps; it was taken to the north of Zagreb. (*N. J. G. Pounds.*)



tion of the roads is still unsatisfactory. Few are fitted for motorized transport, and even fewer have ever been surfaced. However, the river Danube flows along the margin of the most populous and most developed parts of the country, providing a highway of great importance. The considerable number of river ports shows the use made of the Danube. The Iron Gate, formerly an obstacle to shipping between the lower and middle stretches of the river, has now been improved. A navigable channel has been constructed, and though the speed of the current remains high, the channel is at least deep enough for navigation.

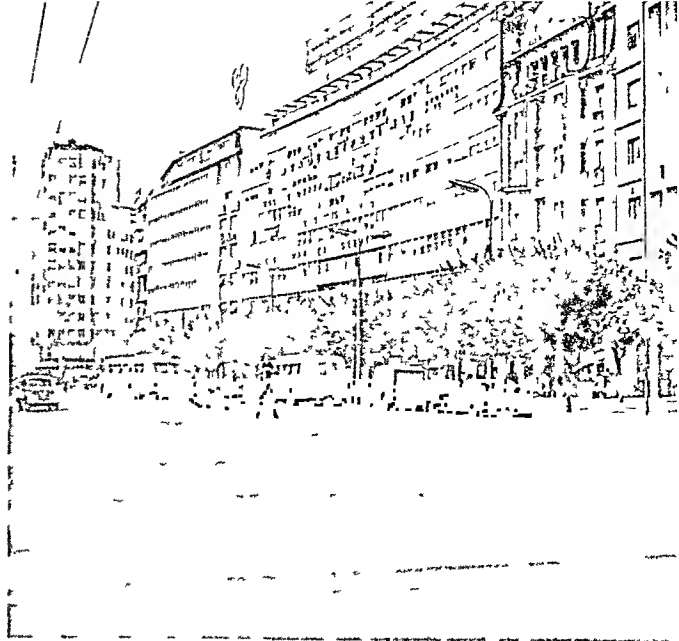
The foreign trade of Romania, like that of most other Balkan states, consists chiefly of the

export of primary produce and the import of manufactured goods. Wheat and maize predominate in the export trade, followed by petroleum, animals, animal products, and timber. Imports consist very largely of textiles, metal goods, and other manufactured articles. Trade before the Second World War was predominantly with the countries of central and western Europe. Germany assumed a dominant position in both the export and the import trade of Romania. The defeat of Germany in 1945 and the absorption of Romania into a Russian sphere have severed this earlier relationship. The bulk of Romania's trade is now with the Soviet Union and the countries of the Soviet bloc.

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Belgrade (Serb: Beograd), the "White Fortress," lies on the high bluffs which overlook the junction of the Sava with the Danube. The Oriental appearance, bequeathed to it by the Turks, has almost disappeared, and the city center of Belgrade is as well built as that of any European city. (N. J. G. Pounds.)



west are the Julian Alps. These extend and broaden southward into the limestone plateau of the Julian Karst, a region so distinctive that it is considered separately. Slovenia is of great strategic importance because here the headwaters of the Danubian rivers approach the coast of the Adriatic. The Karst which separates them is low and, in general, not difficult to cross, and Adriatic ports have developed to serve a Danubian hinterland. The railway from Vienna to Trieste and Rijeka passes through Maribor (G: Marburg, 85,000), where it crosses the Drava, and Ljubljana (G: Laibach, 157,000), the capital of Slovenia.

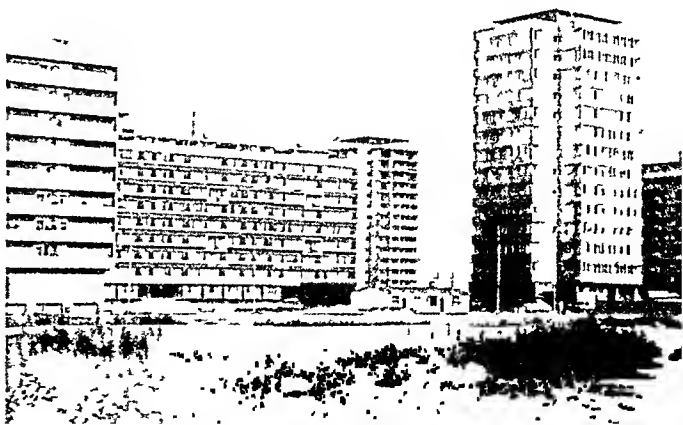
The region is one of great scenic beauty. Agriculture is practiced wherever the land is sufficiently level. Corn and wheat are grown, and vineyards cover the sunny slopes. Villages are

compact, without the uniformity and great size of those of the region last considered. They are more tasteful in their style, and their appearance is more German than Slavic. Ljubljana is an attractive town with baroque architecture of the eighteenth century, nestling beneath the crag on which Austrian princes built their castle. For many centuries an ironworking industry has been carried on in the surrounding hills, and there are today small iron and steel industries in the mountain valleys.

KARST AND THE DINARIC MOUNTAINS

The limestone hills which formed the western limit of Slovenia broaden as they continue southeastward into the Dinaric Mountains. These are

Belgrade, like all capital cities in Europe, is growing fast, and a new suburb, Nowy Beograd, has been founded across the Sava. It is a city made up largely of tall apartment blocks. (N. J. G. Pounds.)



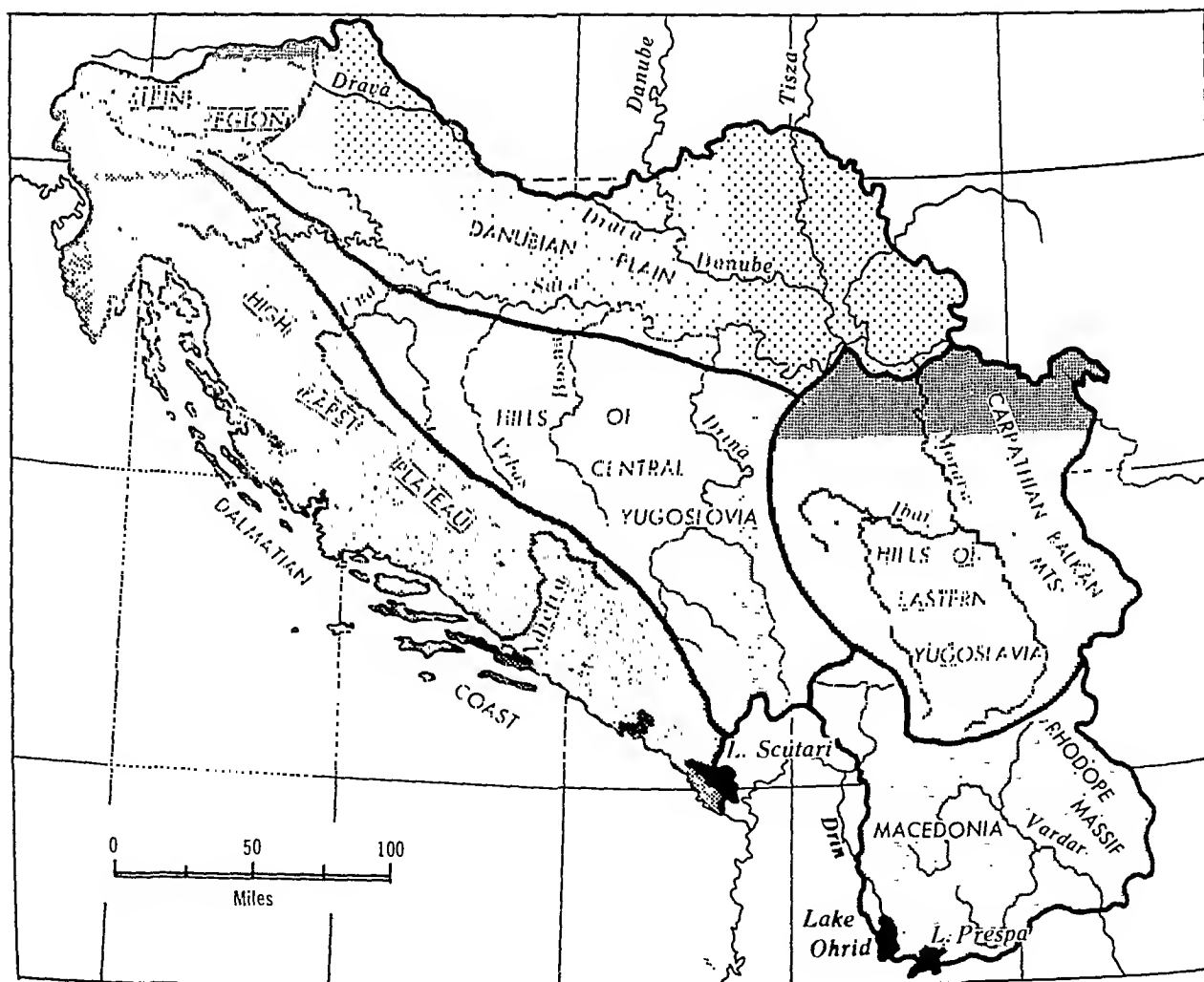
Austria. These two provinces were Slav, and the spoken language of the Croats differed little from that of the Serbs, yet a wide gulf separated these two peoples from the inhabitants of Serbia and Montenegro. The former were in the main Roman Catholic, the latter Orthodox; the former used the Latin script, the latter Cyrillic; the former, despite the unenlightened rule of Austria and Hungary, were more advanced educationally and technically; they enjoyed a higher standard of living and tended to despise the simpler, more backward Serbs.

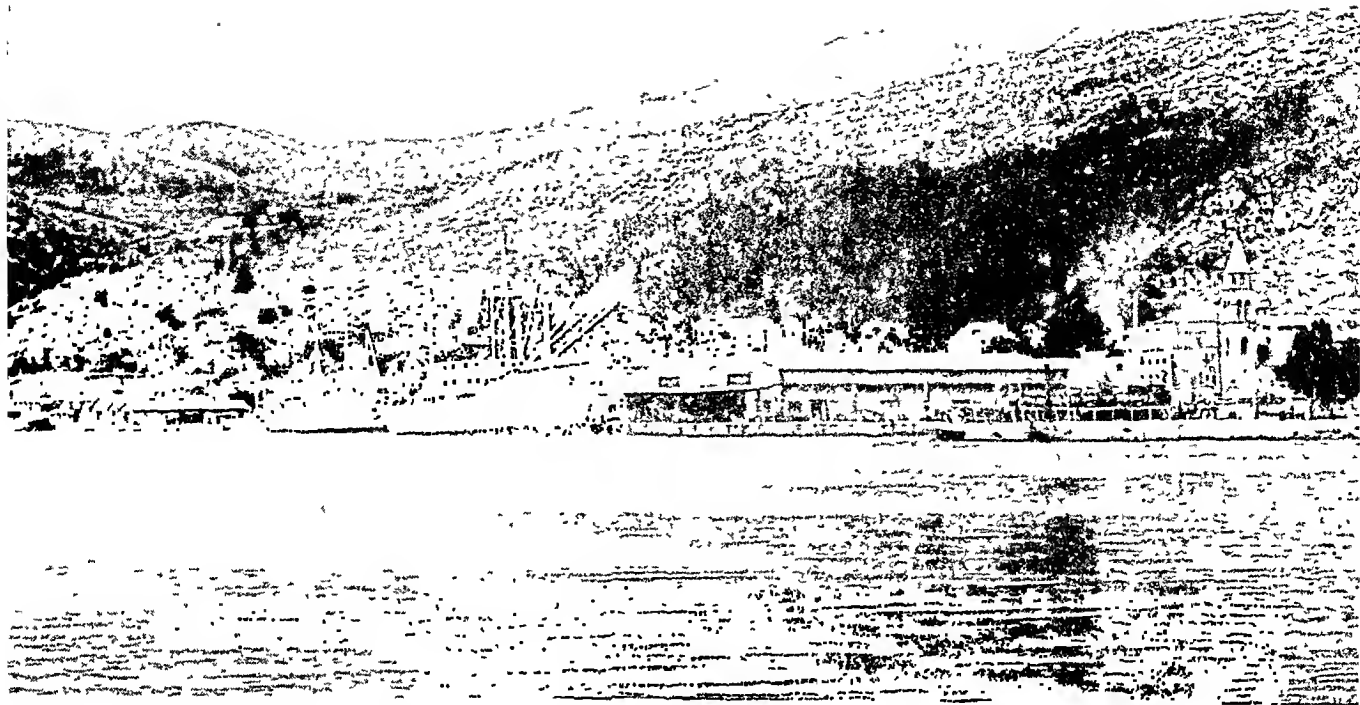
Such were the most important peoples who were thrown together in the new state, but there were others. In the plains of the north were Ger-

mans, Magyars, and Romanians; along the Dalmatian coast were Italians, and in Serbia were Albanians and Bulgars. Lastly, in the most southerly province of Macedonia were a people ethnically so confused that it was difficult, if not impossible, to allocate them to either side. Claimed by Bulgaria and ruled by the Serbs, they have now become a separate people in a federal Yugoslavia.

Yugoslavia, as the state came to be called after 1929, was dogged by internal and external problems. The boundary was in dispute wherever the ethnic pattern was confused, and that was around most of the country's periphery. Except in the northwest, Yugoslavia won most of the arguments

FIGURE 28-1. Yugoslavia: landform regions.



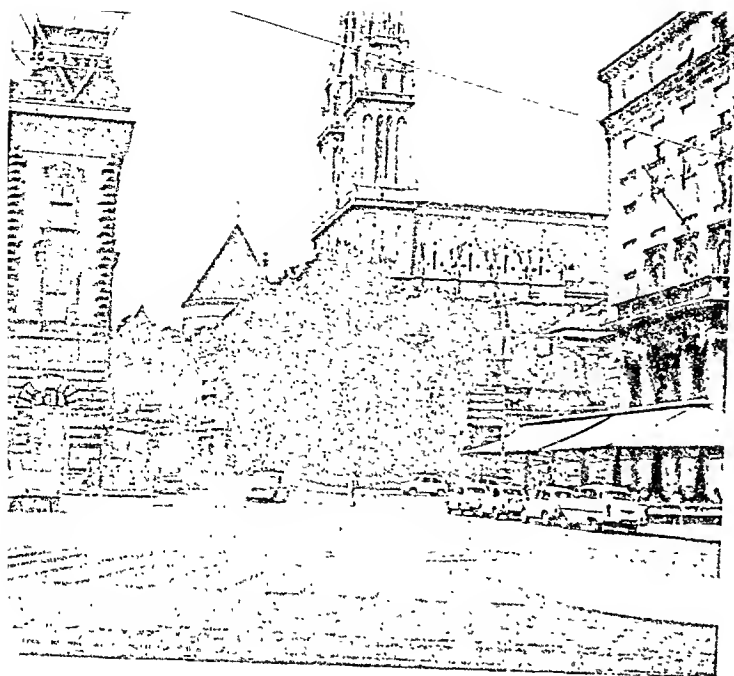


The rugged Dinaric Mountain system cuts the interior of Yugoslavia off from its spectacular Mediterranean (or Dalmatian) coast. The photograph shows Gruz, the port of Dubrovnik, and well illustrates how the mountains rise from the water's edge. (N. J. G. Pounds.)

between the coastal and the interior regions is very marked. The interior belongs to central Europe. Its summers are hot and winters cold; snow may lie for several months on the higher ground. The coast is Mediterranean in climate. Its summers may be only a little less hot than those of the interior, but its winters are mild. Rain falls in winter. The hillsides are terraced for the vine, and near the sea the olive grows. Near the coast the Italian influence is dominant, as is the German in Slovenia. In the coastal towns the predominating architectural style is that of Italy, and in Dubrovnik one finds palaces reminiscent of those along the Grand Canal in Venice. At the end of the Second World War, Yugoslavia acquired the cities of Rijeka (101,000) and Pula (*It*: Pola). The former, lying opposite the easiest crossing points of the Dinaric chain, is being developed as the chief port of Yugoslavia. Along the coast are numerous other towns, most

of them more or less Italian in their appearance, and several actually established by Venice in the days of her greatness. Their present importance, however, is small; they are cut off from the rest of Yugoslavia by the karst, across which transportation is difficult. Though Šibenik (*It*: Sebenico) Split (*It*: Spalato, 93,000), and Dubrovnik (*It*: Ragusa) are linked by rail with the Danubian Plain, the railroads are inadequate for modern requirements. They cannot expect to develop as great ports. They have small fishing industries, they entertain tourists, and they have small manufactures for the needs of their hinterlands.

The Istrian peninsula, newly acquired by Yugoslavia, is a dry and sterile limestone tableland, ringed by the sea and dotted with deep and rocky solution cavities. The Kvarner (*It*: Quarnero) Gulf between Istria and the Yugoslav coast is dotted with islands, like the fiord coast of Norway. The Velebit rises abruptly from the



Zagreb, always more "Western" in feeling and appearance than Belgrade, has preserved more of its early character. The photograph shows the cathedral set on one of the two low hills which formed the nucleus of the city. (N. J. G. Pounds.)

peasants live in large, nucleated villages, like those of Hungary, designed to give protection to their inhabitants. Most of these were established in the eighteenth century, after the reconquest by the Austrians, and were peopled with the varied ethnic groups which still survive here. The fields often lie at great distances from the villages to which they belong. But the region is well cultivated, especially toward the east. Wheat and corn are grown on the plains, and rye in the hills. The grapevine is widely distributed, and orchards, chiefly plum, are numerous.

Zagreb (*G*: Agram, 457,000)¹ is the chief town in the west of the region. It stands back from the northern bank of the Sava, and is overlooked by the last outliers of the Alps. It is a natural center for the fertile and populous plain of the upper Sava and has agricultural industries which serve the surrounding area. Belgrade (*S-C*: Beograd, 598,000) lies to the west, at the junction of the Sava with the Danube and on the boundary of the northern plain with the hills of Serbia. The city crowns a limestone cliff above the Danube. The Romans, the Serbs, and later the Turks had utilized it for a fortress, which now stands as a

splendid ruin, dominating the river and commanding a view northward far over the Hungarian Plain. The city of Belgrade has spread back from the low hills to the south of the Danube, and recently over the plain between the Danube and the Sava. Its position at the junction of the two rivers has brought it trade. Belgrade lies on the railway from Vienna to Istanbul by way of Morava and Maritsa Valleys and also to Salonika by way of the Vardar, and its position on the edge of the Vojvodina has encouraged the growth of agricultural industries.

The town of Subotica (*G*: Maria-Theresienstadt, 75,000) lies on the northern edge of the Vojvodina, close to the Hungarian border, and Novi Sad (*G*: Neusatz; *H*: Ujvidék, 111,000) at an important crossing of the Danube. Both are market centers, with metallurgical, chemical, and other industries.

SLOVENIA

Slovenia is a small, mountainous unit cut off between branches of the Alpine chain. On its north, bearing for much of its length the boundary between Yugoslavia and Austria, are the Karawanken Alps, a steep and narrow range, whose snow-capped and serrated ridge appears to separate the two countries as if by a knife. On

¹ The population in 1961 is given for all cities named of over 50,000.

Morava, through the Kosovo Polje to join the Vardar Valley at Skopje (Skopje, S-C: Skoplje T: Usküb, 172,000).

The region is divided into a number of separate mountain masses. In the north, between the Morava and the Danube, is the region known as the Šumadija, an area of hills of limestone and schist, in which harder rocks give rise to higher and more rugged topography. It has a severe climate, cold in winter with heavy snow and hot in summer. Until modern times it was thickly forested with oak and elm and provided a refuge for the Serbs in their revolt against the Turkish rule. In recent times, however, the Šumadija has been in part cleared of its woodland cover and, wherever possible, brought under cultivation. The lower and more open valleys are now well settled and cultivated. Urban settlements are found exclusively in the surrounding lowlands, where they depend upon both long-distance commerce and the trade between mountain and plain.

The Morava, which takes its source quite close to Skopje, widens northward into a broad valley which continues to the Danube. This region is relatively populous, and there are a number of towns: Leskovac, with its cotton textile industries; Niš (85,000), a commercial and route center, where the Sofia railroad branches from that to Thessalonike; Krusevac and Kragujevac (53,000), each with chemical and food industries.

From the Šar Planina, which forms the divide between the Adriatic and Aegean drainage, the Vardar Valley broadens southward into Macedonia. It crosses in turn a number of east-west hill barriers which divide the area into a series of small plains, broadly resembling the "compartments" of the lower Rhône Valley. As the Aegean Sea is approached, the climate becomes progressively more Mediterranean. The extreme temperatures of winter are moderated, and rainfall becomes increasingly concentrated in the winter months. Its total is generally small, and much of the lower land is covered with a steppe over which graze large flocks of sheep. Macedonia is a byword for racial intermixture and for the political unrest which is in part a consequence of it. Even today the groups of Turks, Gypsies, and even nomadic

Vlachs add to the complexities of the area, to which the Bulgars cherish long-standing claims.

THE MOUNTAINS AND PLAIN OF WESTERN SERBIA

South of the Šumadija and west of the Ibar is the region of mountain and *polja* sometimes known as "Raška," which comprises politically the Kosovo-Metohija Autonomous Region and the western part of Macedonia in which settlements are limited to loosely agglomerated villages of wooden houses, each standing in its small garden patch. The economy is more pastoral than arable. Sheep and goats are kept on the rough grazing of the hills, and transhumance is practiced. Between the two areas of hill is the Ibar Valley, deep and narrow in part but widening south of Mitrovica into a broad, upland basin, the Kosovo Polje. This is a small area of some natural wealth and during the Middle Ages was the nucleus of the earliest kingdom of Serbia. It was practically deserted, except for the transhumant shepherds who wintered here during the disturbed period of the Turkish occupation, and the present settlement and development of the basin are comparatively recent. The towns of Mitrovica and Priština, which lie on its margin, are still quite small market towns, in which Turkish influence remains strong.

Between the Kosovo Polje and the Albanian frontier is a similar but larger basin, the Metohija Polje, drained by the White Drin, which flows westward through Albania to the Adriatic. Despite the relatively favorable conditions, the Metohija Basin is still not well populated. In Roman times it was a corridor from the Adriatic to the Morava and Danube Valleys, and in modern times Serbia looked upon it as a potential outlet toward the sea. It was, in fact, the conflict between Serbia and other powers for the possession of this route-way that contributed in 1912 to the creation of the state of Albania. There are a number of towns around the margin of the basin; Peć and Prizren are now the chief towns of the area. The population of this area is today heavily Albanian. The Serb population, which had lived here from early in the Middle Ages, withdrew northward in the

characterized by the great extension and enormous thickness of their limestone deposits. Limestone forms much of the surface of an area of from 50 to 100 miles in breadth and no less than 350 miles in length from Italy to Albania. Within this area, surface drainage is rare. Only the Neretva, deeply sunk in a gorgelike valley, flows across this region to the sea. A few streams, including the Una, a tributary of the Sava, rise within the limestone, but most of the drainage is underground. The surface of the limestone is broken by solution hollows, known as *polja*, and by vertical pipes, known as *doline*, formed by the solution of the limestone. Most inland settlements are situated in the *polja*, where a residual clay, left after the solution of the limestone, forms a

level surface, retentive of moisture and ringed by the sterile limestone. The smallest *dolina* may have no more than a fraction of an acre of cultivable land and a peasant home. All around is the rolling plateau, mantled in part with a thin cover of scrub forest dwarfed by lack of moisture, in part showing the bare, white, dry limestone, without soil or vegetation.

The mountains form ridges which lie from northeast to southwest. Between are valleys, sometimes with sparse settlements but often quite devoid of flowing water. The coastal ranges drop steeply to the shores of the Adriatic Sea, and off the coast long, narrow, and rocky islands are all that remain of other limestone ranges, now in large measure destroyed by the sea. The contrast

A *polje* in the rugged limestone country of Montenegro. The small area of cultivable clay soil, divided up into tiny fields, is surrounded by hills of bare rock. (N. J. G. Pounds.



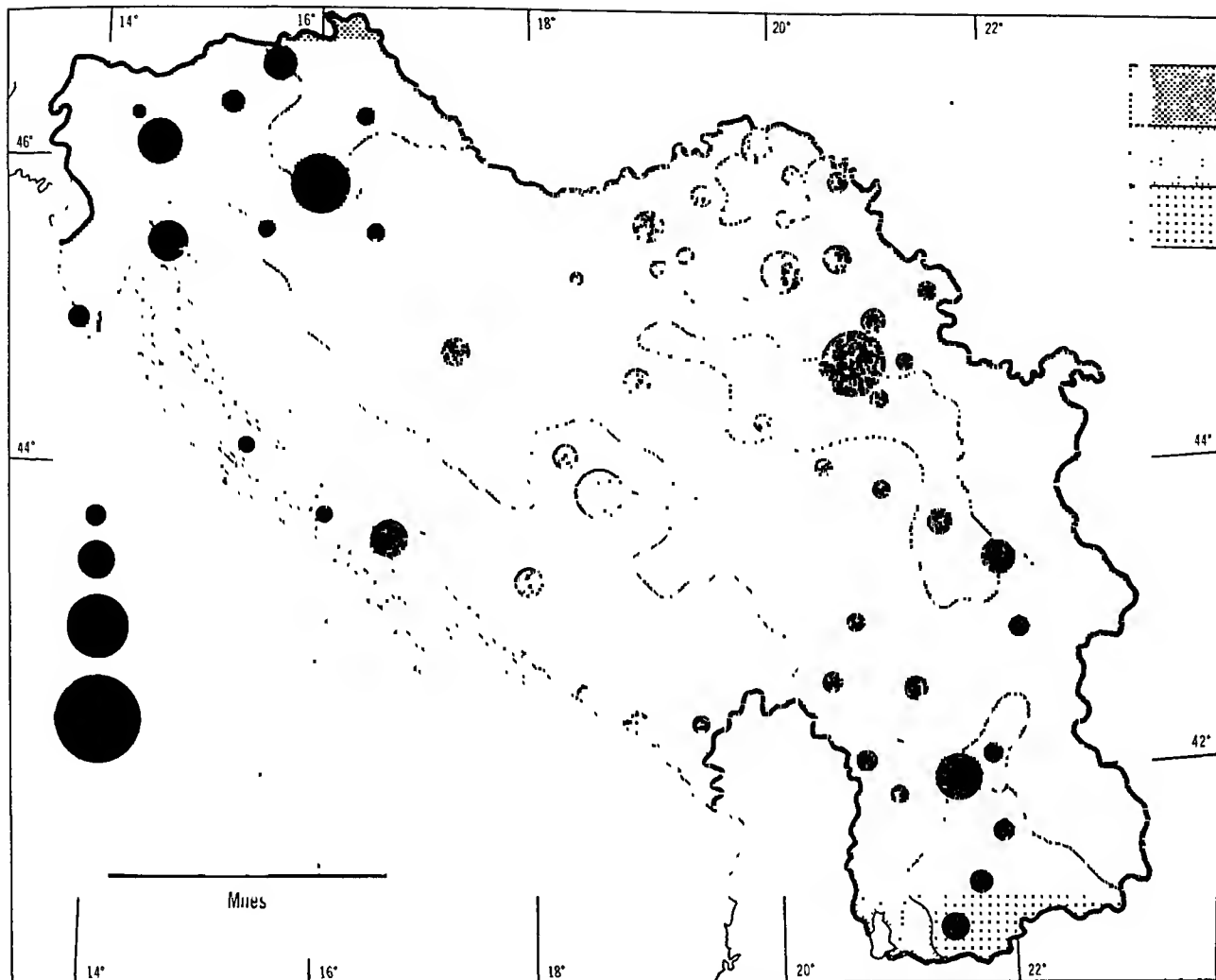


FIGURE 28-2. Yugoslavia: distribution of population and larger cities.

World War was over 15,800,000. The birth rate is high, and despite the losses of the war years, the population in 1961 had risen to about 18,607,000. The bulk of the population is rural in its habitat and agricultural in its pursuits. There are many market towns, but most are very small. Belgrade, the capital, has about 598,000 inhabitants, and altogether there are only seven cities with a population over 100,000. Most towns lie in the Danube and Sava Valleys in northern Yugoslavia and on the Vardar-Morava routeway. Three-quarters of the employed persons are engaged in agriculture, and the distribution of population is largely determined by that of cultivable land. Agricultural population is dense on the small areas

of agricultural land in the Dinaric Mountains, and very high densities are recorded in Herzegovina and along the Dinaric coast.

Farm holdings are in general small. Before the Second World War there was a very large number of small and dwarf holdings, and the large holdings which existed have since been broken up. After the Second World War there was a short-lived attempt to collectivize agriculture. This met with strong resistance from the peasantry, and was reversed. Today there are very few collectives and state farms.

Yugoslavia may be divided into three agricultural regions which accord closely with the physical divisions. The northern plains are good agri-

coast and interposes a serious barrier to movement between it and the interior. A gap between the Velebit and the Dinaric Mountains to the east is followed by a railway which thus insinuates itself across the region of the high karst plateau, or *planina*, to the coast cities of Sibenik and Split. To the southeast, the Dinaric range is interrupted by the Neretva Valley, used by the railway from Sarajevo to Dubrovnik. Southeast of the Neretva Valley are the hills of Hercegovina (G: Herzegovina) and Montenegro (S-C: Crna Gora), wild and difficult of access, in which groups of Serbs maintained their freedom from Turkish rule. On the coast is the deep, rocky inlet of Kotor (It: Cattaro), a veritable fiord in a subtropical setting, formerly used by the Austrians as a naval base, but impossible to develop as a commercial port owing to the lack of communication with its hinterland. Most recent to be developed is the port of Bar, lying at the southern extremity of the Dalmatian coast and within 16 miles of the Albanian border. Despite the rugged mountain country which intervenes and the difficulty of transportation, it is destined to be the commercial outlet of the Montenegrin industrial region and of its chief city, Titograd.

CENTRAL YUGOSLAVIA

Between the limestone plateau of the Dinaric Mountains and the fertile valley of the Sava are the mountains of central Yugoslavia, a rugged area traversed by numerous rivers whose deep valleys make communication difficult. High, forested, and inhospitable masses of harder rocks alternate with *polja*, dissolved from the limestone, in which settlement is thicker and agriculture more intensive. Four major rivers rise on the southern borders of the region and cross it in deep, winding valleys to reach the Sava. In the west is the Una, followed in part by the railway to Split. Next is the Vrbas, which drains the wild mountains of central Bosnia and emerges on to the Sava Plain near the town of Banjaluka (51,000). The Bosna rises in the same hills. For most of its course northward it cuts across the high mountain ranges of Bosnia, but near Sarajevo its valley widens to a fertile

plain. This is the heart of the province of Bosnia, the most densely peopled area within the Yugoslav highlands. Sarajevo (199,000) is its largest town, an industrial and business center for the whole region and one of the largest towns of Yugoslavia. The Drina, the largest and most easterly of the four rivers, takes its rise in the yet wilder mountains of Crnagora, where the princes of Montenegro once maintained a rude independence in their little capital of Cetinje, now replaced by the more accessible and rapidly industrializing city of Titograd. Except in the north, the valley is steep and rugged, more suited for rough grazing than for agriculture.

Along their northern margin the mountains drop through a multitude of short, truncated hills toward the Sava Plain. The area under agriculture increases, and population becomes more dense. A line of small towns lies here, as so often in such circumstances, along the border of hill and plain. These are sprawling, sometimes none too attractive, but nevertheless Western in their architecture, plan, and function. Within the mountains, where the imprint of the years of Turkish occupation went deeper, the small towns belong rather to the East. Turkish-style houses with their craving for privacy and their interior courtyards are common. The mosque and minaret are frequent features of the landscape, and in Bosnia in particular there are large communities of Moslem Serbs.

VARDAR AND MORAVA VALLEYS

Eastern Yugoslavia differs fundamentally from the Dinaric system. It is made up of Paleozoic rocks, intruded by countless masses of igneous, which give rise to a very accidented relief, as in the Kopaonik Mountains. It is drained northward to the Danube by the Serbian Morava and southward to the Aegean Sea by the Vardar. The valleys of these two rivers are continuous in a north-to-south divide, and together they form one of the most important routeways in the Balkans. In its northern part, from Belgrade to Niš, it is followed by the old Orient Express route to Istanbul. West of the Morava-Vardar route and parallel with it is that which follows the valley of the Western

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course of the Turkish wars of the late seventeenth century. Their place was at once taken by Albanians, who descended from their mountains and have since occupied the basins.

South of the Metohija Basin, beyond the formidable mountain barrier of the Šar Planina, lies the basin of Tetovo, containing Skopje and Kumanovo. This is larger than the Metohija but, like it, has urban centers which derive from the period of Roman occupation. It is also an old lake basin, possessing soils of high natural fertility. Its development has, however, been inhibited by centuries of unrest. The towns are large, but Oriental in both appearance and function. Life centers in the bazaar, where are innumerable craftsmen in wood, leather, and metal. There are few modern factory industries.

In southwestern Yugoslavia, close to both the Albanian and the Greek frontiers, is the Bitolj (T: Monastir) Basin, which is not unlike the basins lying to the north. West of it are the smaller basins which contain Lakes Ohrid and Prespa, only part of which lies in Yugoslavia. The climate becomes drier toward the south, but the extremes of temperature are moderated only little. The mountains are forested or covered only with rough grass, and the basins are steppelike. Pastoral activities are important throughout the region, and

transhumance is still practiced, though it is of diminishing importance as the lowland winter grazing comes to be used for crop farming.

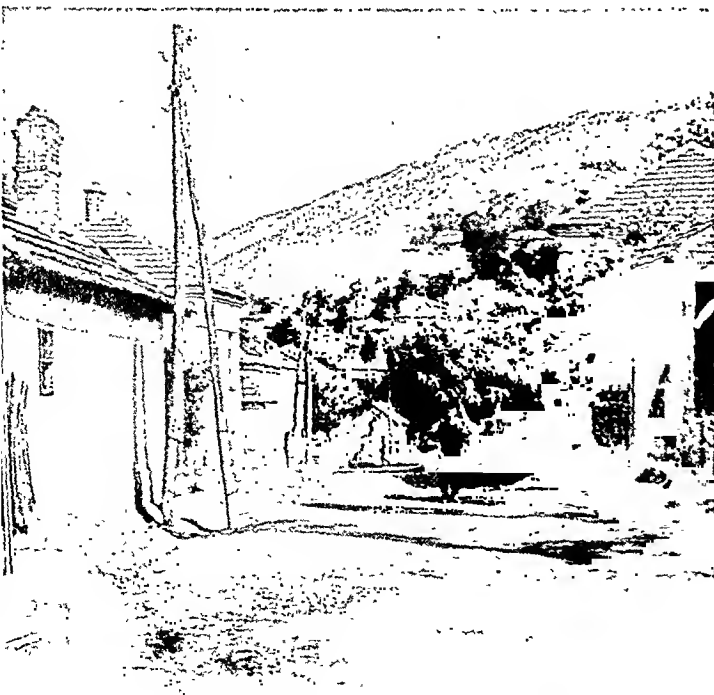
THE BALKAN MOUNTAINS

East of the valley of the lower Morava lie the Balkan Mountains of Bulgaria, folded ranges more akin to the Dinaric system than to the massif which comprises most of Serbia. They continue the line of the Transylvanian Alps, from which they are separated only by the gorges cut by the Danube. This is a rugged country of mountain ridges and deep, narrow valleys, drained to the Morava or directly to the Danube. It is thinly peopled, and one of its chief sources of wealth is the copper mines of Bor.

ECONOMIC DEVELOPMENT

Yugoslavia is one of the newer countries of Europe and, like Czechoslovakia, has faced the problems of welding distinct fragments of territory into a single state, and of reducing several ethnic groups to a single cohesive nation. Yugoslavia has made very much less progress than Czechoslovakia in both these directions.

The total population on the eve of the Second



Yugoslav village, in the mountains near the Bulgarian border. It forms a loose, irregular pattern, unlike the "street" and tightly nucleated villages in central Europe. (N. J. G. Pounds.)

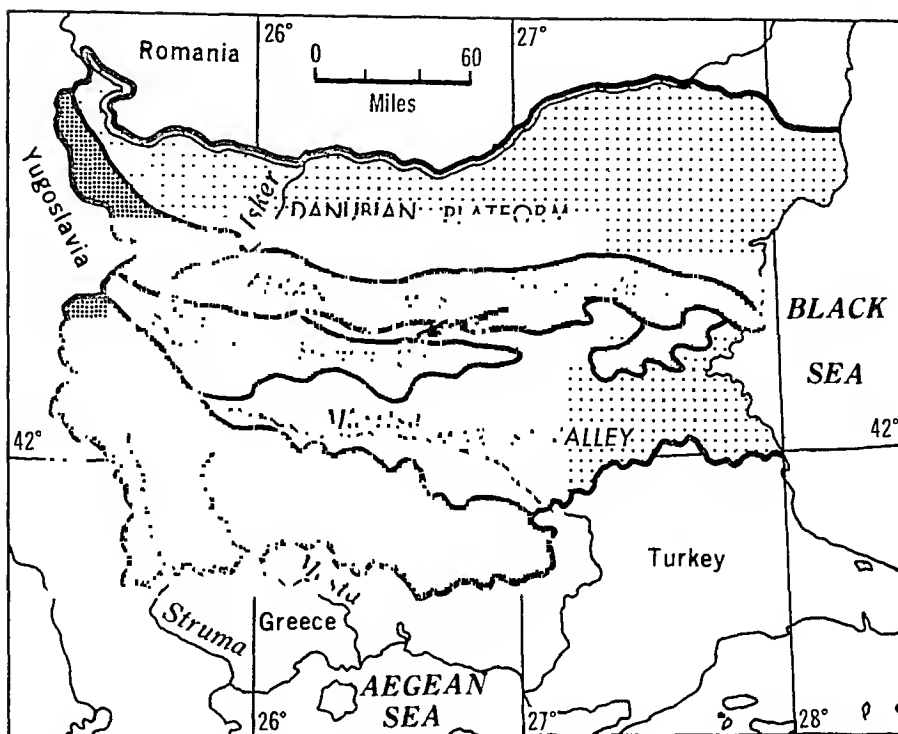


FIGURE 29-1. Bulgaria: landform regions.

South of the latter is a depression drained mainly by the Maritsa. The Rhodope Mountains shut in Bulgaria on the south.

DANUBIAN PLATEAU

The Bulgarian Plateau to the south of the Danube resembles the Romanian province of Walachia. It is a low plateau built mainly of chalk. The rivers which cross the region from the mountains to the Danube have cut deep valleys across it. The plateau surface is dry, and much is covered with a deposit of loess. The large, compact villages—there are no scattered settlements—lie in the valleys, where water is more plentiful. The plateau itself is rolling and treeless. In parts it is too dry for regular cultivation, and its aspect is in parts like that of the steppe of eastern Romania. Wheat and maize are grown, and in places sheltered from the bitter winds which blow in winter from the Russian plains, the grape is harvested. Winters are severe, and summers very hot, suited to the cultivation of maize and sunflower, which is grown

The Bulgarian Platform, between the Stara Planina and the river Danube, is an undulating and in parts hilly region. Much of it is cultivated, but more hilly areas provide only rough grazing. The photograph was taken near Sevlievo. (N. J. G. Pounds.)



cultural land and well cultivated. The hilly region of central Yugoslavia has more grazing and rough pasture than the north, and here a more primitive agriculture is practiced. Wheat is less important, rye and oats more so than in the plains. The coastal region of the Adriatic is Mediterranean in its climate and agriculture. The grape and the olive predominate, and animal husbandry is of only trifling importance.

Yugoslavia has a considerable mineral wealth. Coal, much of it brown coal, is mined in Slovenia, Bosnia, and the Morava and Timok Valleys. Altogether there is an annual output of about 20 million tons of lignite, but less than 2 million tons of bituminous coal is produced. There are a number of copper, lead, zinc, and chrome mines, and the production of lead ore, chiefly from Trepča, has in recent years been one of the largest in Europe. Most of the industrial development is in the northern plain, where the means of communication are better developed and the market larger. It is concerned principally with working up the agricultural produce of the country. Metallurgical, engineering, and textile industries are relatively undeveloped and unimportant.

Railway development is uneven. In the northern plain it is adequate but in the mountains which cover the greater part of Yugoslavia it is confined to a few trunk lines and a number of narrow-gauge lines. Of the ports only Rijeka has an adequate railway connection with the interior. Under normal political conditions the Danube is an important commercial highway in northern Yugoslavia. The Sava is used to a smaller degree, but other rivers are of only slight value.

The foreign trade of Yugoslavia formerly resembled that of its Balkan neighbors. It was an exporter of agricultural produce and minerals and an importer of metal wares, textiles and textile materials, chemicals, and other manufactured goods.

Yugoslavia belongs in part to southern Europe. Its Mediterranean coast, 400 miles from the Istrian peninsula to the border of Albania, is backed by high mountains difficult to cross in most places. There are few railroad crossings, but this region does serve to link Yugoslavia with the

countries of the west. Yugoslavia thus faces both east and west. This is reflected in Yugoslav politics. Before 1914, there was a strong pro-Austrian faction opposing the nationalistic Serbs, who generally depended politically upon Russia. Between the two wars a not dissimilar situation existed. Today Yugoslavia, profiting from her geographical position and from the relative ease with which she can obtain material support from her western allies, has broken with Russia. All the Slav nations of central Europe are in varying degrees hostile to Russian domination, but only Yugoslavia has hitherto escaped from the Russian fold.

In other respects Yugoslavia resembles her Danubian neighbors. She is poor and backward, like the rest, but is slowly implementing her plans for agricultural and industrial development. She is able, as other Danubian states are not, to obtain capital equipment from the West, either by loan or by purchase, for her development, and has greatly benefited from supplies from the United States.

TABLE 28-1. Chief Elements in Yugoslavia's Foreign Trade, 1962 (In Millions of Dinars)

Item	Imports	Exports
Food	37,539.6	47,448.3
Beverages and tobacco	1,164.3	8,935.2
Crude materials, inedible	40,137.9	29,372.1
Mineral fuels	14,368.8	5,242.2
Animal and vegetable oils and fats	4,286.1	212.4
Chemicals	23,367.0	6,471.9
Manufactured goods	48,704.7	46,923.6
Machinery and transport equipment	88,071.0	47,195.1
Miscellaneous manufactured articles	8,556.9	15,154.8
Miscellaneous transactions and commodities	119.4	178.4
Total	266,317.0	207,135.3

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1963.



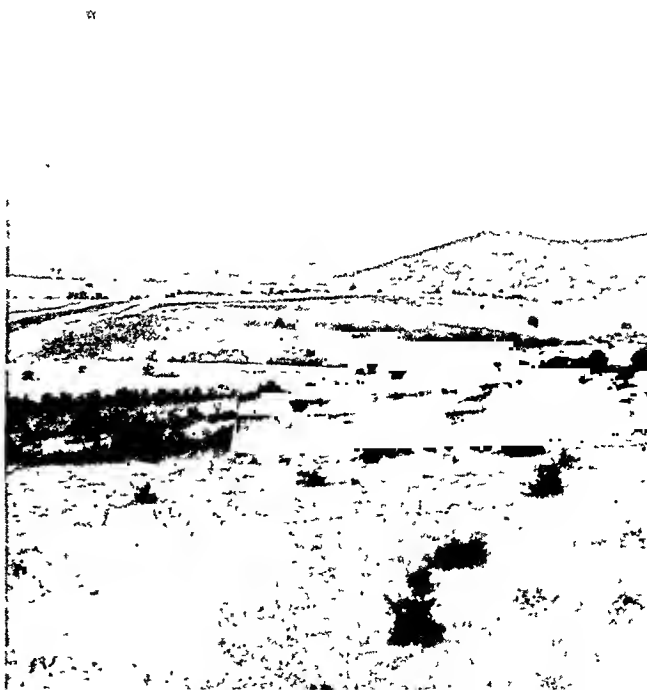
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South of the latter is a depression drained mainly by the Maritsa. The Rhodope Mountains shut in Bulgaria on the south.

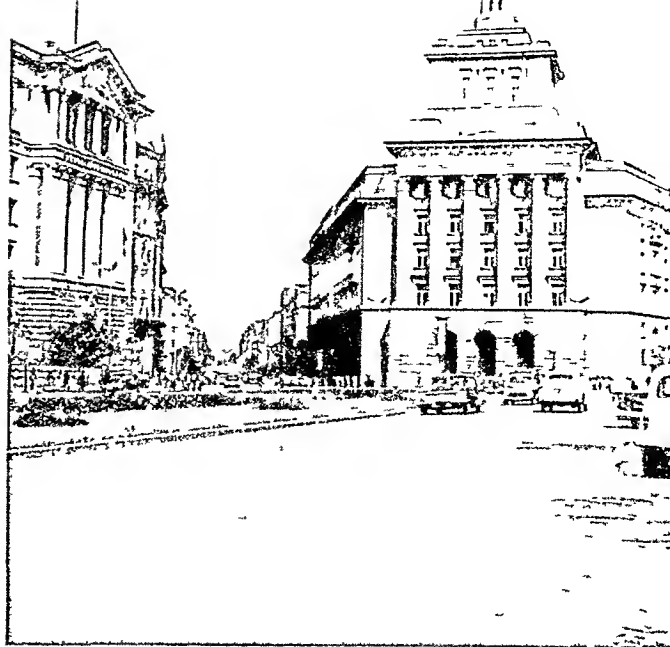
DANUBIAN PLATEAU

The Bulgarian Plateau to the south of the Danube resembles the Romanian province of Walachia. It is a low plateau built mainly of chalk. The rivers which cross the region from the mountains to the Danube have cut deep valleys across it. The plateau surface is dry, and much is covered with a deposit of loess. The large, compact villages—there are no scattered settlements—lie in the valleys, where water is more plentiful. The plateau itself is rolling and treeless. In parts it is too dry for regular cultivation, and its aspect is in parts like that of the steppe of eastern Romania. Wheat and maize are grown, and in places sheltered from the bitter winds which blow in winter from the Russian plains, the grape is harvested. Winters are severe, and summers very hot, suited to the cultivation of maize and sunflower, which is grown

The Bulgarian Platform, between the Stara Planina and the river Danube, is an undulating and in parts hilly region. Much of it is cultivated, but more hilly areas provide only rough grazing. The photograph was taken near Sevlievo. (N. J. G. Pounds.)



Sofia is a bright, spacious city with wide streets and little traffic. (N. J. G. Pounds.)



planted with the grapevine and roses, whose petals yield attar of roses, important in the manufacture of perfume. The towns of Sliven (54,000), Kazanlik, and Karlovo lie in this depression. They are market towns, and Kazanlik is furthermore the manufacturing center for attar of roses. Toward the west, in an upland basin, bordered by Stara Planina and the westernmost spurs of the Sredna Gora, and drained by the Isker, is Sofia (*Bulg*: Sofiya, 671,000).

Sofia is in origin a Roman city which grew up on the route that followed the Maritsa Valley and then crossed the passes along the southern flanks of the Balkan Mountains to the Morava Valley. It has always been a route center, and is now traversed by the most important road and railroad from the middle Danube Valley to Istanbul. It has recently developed a number of manufacturing industries, most of which are concerned with the processing of agricultural produce. Northwest is the Dragoman Pass between the Sofia Basin and the Morava Valley. It is used by the railway from northwestern Europe to Istanbul which passes through Sofia.

MARITSA VALLEY

The valley of the Maritsa (*T*: Meric; *Gr*: Evros) is a triangular area of lowland developed largely on young soft rocks. On its southern edge the

Rhodope Mountains rise steeply from the plain. In the east are the forested and sparsely peopled Istranca Mountains, a kind of outlier of the Rhodope, separated from the main mass by the valley of the Maritsa, through which runs the Turkish frontier. Toward the northeast the plain narrows between the Istranca and the Stara Planina and becomes less regular, where it is interrupted by volcanic intrusions, and reaches the Black Sea. The climate of the Maritsa Plain is milder even than that of the depression of the upper Tundzha Valley, and winters are shorter and less severe. Rainfall, however, is small, and there are extensive areas of steppe, too dry for regular agriculture. Irrigation is practiced where water can be obtained from the rivers, and rice is grown along their bank. Wheat, maize, tobacco, tomatoes, and sunflower are grown and also the grapevine and southern fruits, such as the peach and apricot.

There are few towns. Plovdiv (*Gr*: Philipopolis, 171,000), toward the western end of the plain, is the largest. It lies on both railway and river, was an ancient focus of trade, and has now grown to be an industrial city and the second largest in Bulgaria. Most other towns remain market centers on the edge of the plain, at the meeting place of highland and lowland, where are exchanged the products of each.

The town and port of Burgas (76,000) lies where this plain reaches the Black Sea. It is con-

Bulgaria and Albania

29

The state of Bulgaria came into existence in 1878 after the defeat and withdrawal of the Turks from the territory immediately to the south of Danube. At first it consisted only of approximately the northern half of present territory. Much of the rest was added in 1885, while the southernmost part was gained as recently as 1912. Bulgaria had enjoyed an independent existence during the Middle Ages, when it extended over a considerable though ill-defined area. The memory of the former empire aroused unfortunate ambitions in modern Bulgaria.

The Bulgar people derive their name, though their language to only a very minute extent, from a Ural-Altaic people who invaded Europe from Asia during the Dark Ages. They have been, however, strongly Slavonized, and their language is now basically Slavic. After her too rapid expansion, Bulgaria lost territory in 1913 and again in 1920, and was left with few linguistic minorities. Most of the small number of Greeks were removed to Greece and the largest surviving minority is the Turkish group. Many of these have been forcibly returned to Turkey in recent years and those who remain in 1956 did not number more than about 656,000.

A northern plain borders the Danube and rises to the Balkan Mountains

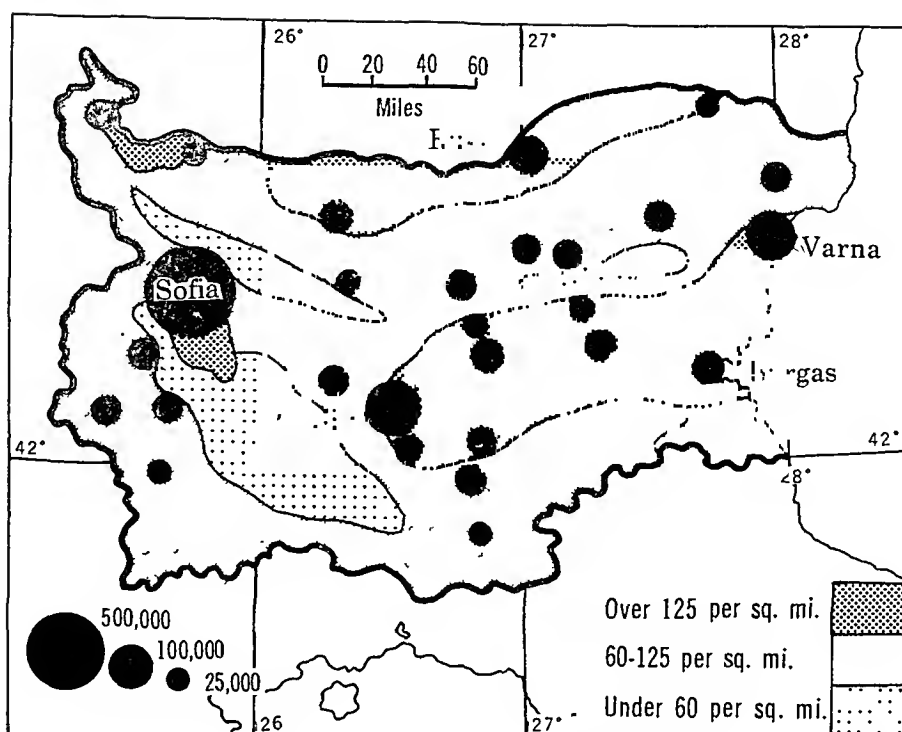


FIGURE 29-2. Bulgaria: distribution of population and larger cities.

cotton and hemp, are grown but are not important and have not given rise to any important manufacturing industries.

Mineral resources are little explored, but there are no indications of any great wealth in this respect. There are a number of deposits of both bituminous coal and lignite, but production of the former scarcely exceeds half a million tons. The output of lignite, however, amounts to about 19 million tons annually. The manufacturing industries are mostly related to the domestic agricultural production: flourmilling, sugar refining, and tanning. The manufacture of chemicals and machines is practiced on only a very small scale. The recent attempts to develop an iron and steel industry have met with little success, and in 1962 pig-iron production amounted to only 223,000 tons, and steel to only 423,000. No truly modern plant could operate on so small a scale.

Exports have consisted in recent years very largely of goods of agricultural origin. Tobacco predominates; live animals and animal products, such as skins and wool, and cereals and fruit make up most of the remainder. The imports are

mainly textiles, metal goods, and machinery. The volume of trade has always been small, and the amount of trade per head of population was before

TABLE 29-1. Chief Elements in Bulgaria's Foreign Trade, 1962 (In Millions of Leva)

Item	Imports	Exports
Live animals	0.6	0.1
Foodstuffs	27.5	286.8
Raw materials for the food industry	23.1	41.8
Other raw materials of vegetable and animal origin	100.6	130.6
Fuels, minerals, metals	222.9	81.4
Chemicals, fertilizers, rubber	55.9	21.5
Building materials	6.2	7.9
Machinery and equipment	418.1	175.8
Consumers' goods of industrial origin	63.2	158.0
Total	918.1	903.9

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1963.

as a source of vegetable oil. Towns of the region are little more than large, untidy villages, in which is sold the produce of the fields. The largest of these are Ruse (*T*: Ruschuk, 92,000),¹ Bulgaria's chief Danubian port, and Pleven (67,000), which lies on the rolling plateau to the south of the river.

Toward the south, the surface of the plateau becomes more hilly and woodland more extensive. Among these hills is Trnovo, a former Bulgarian capital, situated in one of the larger valleys. Toward the east the plateau rises to the Deli Orman Hills, a region of no great height, but sparsely peopled, partly on account of the low rainfall and the extreme dryness of the chalk soil. From the Deli Orman, a plateau of diminishing height stretches into the Dobrogea of Romania.

THE BALKAN MOUNTAINS (*Bulg*: *Stara Planina*)

The Balkan Mountains are a range of folded mountains which cross the Danube at the Iron Gate and then swing to the east, diminishing in

height and breadth, until they reach the Black Sea. They are composed mainly of limestone and sandstone, with crystalline rocks composing the core of the range and outcropping to form the higher peaks. The range is neither particularly high nor difficult to cross. The river Isker, on whose banks lies Sofia, rises to the south and flows across the Stara Planina toward the Danube. To the east are a number of passes of no great difficulty. The mountains have a severe climate, with a heavy rainfall in parts, and are sparsely peopled. Immediately to the south of the crystalline central ridge is a narrow depression carved from younger sedimentary rocks and enclosed on the south by the Sredna Gora and Sarnena Gora, smaller and less-continuous ranges than the Stara Planina, which are nevertheless also composed in part of crystalline rocks. The intervening depression is drained for almost half its length by the river Tundzha (or Tunja). It has a milder climate than that of the Danubian Plateau and is protected from the winds, cold in winter and hot in summer, from the Russian plains. The valley is in fact divided into a number of separate basins, in most of which the soil is good and light. An intensive agriculture is practiced. The warm hill slopes are

¹ The population in 1959 is given for cities of over 50,000.



Bulgarian village: this loose scatter of homes and farms occupies a meander core of the river Jantra, in the northern foothills of the Stara Planina. (*N. J. G. Pounds*.)

tants each. This is largely the work of the Italians after 1926, but behind this facade is a self-sufficing and almost Oriental people, among whom the blood feud still continues in remote parts and advanced agricultural methods are little known.

In the spring of 1939 Italian armies occupied Albania. The country had been for many years under Italian economic control, and this occupation made little difference to the country as a whole, though it resulted in Albania's trade being oriented more directly toward Italy. It did, however, allow the Italians to prepare their invasion of Greece. The defeat of Italy in the Second World War was followed by the restoration of the independence of Albania and the establishment of the Communist regime which still controls the country. Albania has little economic significance, but strategically its location, opposite the "heel" of Italy, is an important one. Its policy tends to be colored by its hostility to its neighbors, especially Yugoslavia, where there is a large Albanian community.

Since 1947 the national plans have called for the development of manufacturing industries. Albania remains the least industrialized of the Communist countries, but considerable progress has been made in recent years. An oil refinery has been built; the mining of lignite and metalliferous

ores, especially chrome, has been expanded, and textile and food-processing factories have been established. Albania's foreign trade remains very small, and is unique among the countries of the Communist bloc in being quite unbalanced. There is a relatively very large import of manufactured goods, especially machinery, and fuel.

TABLE 29-2. Chief Elements in Albania's Foreign Trade, 1961 (In Millions of Lek)

Item	Imports	Exports
Live animals	0.0	0.0
Foodstuffs	181.2	603.0
Raw materials for the food industry	817.1	0.8
Other raw materials of vegetable and animal origin	267.4	269.4
Fuels, minerals, metals	491.0	1,363.7
Chemicals, fertilizers, rubber	271.8	5.4
Building materials	39.2	41.5
Machinery and equipment	1,345.4	13.5
Consumers' goods of industrial origin	198.5	131.6
Total	3,611.6	2,429.9

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1962.

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nected by rail with the interior and shares with Varna (124,000), at one time known as "Stalin," the seaborne trade of Bulgaria.

RHODOPE

The Rhodope (*Bulg.*: Despoto Planina; *T.*: Dospad Dag) is a high and rugged massif of crystalline rock which has always presented a serious barrier to communications. It has no transverse valleys and few passes to assist travelers, and it contains the highest mountains in the whole Balkans. South of Sofia is the Rila Planina, a plateau over 6,000 feet in height, which rises in Musala to 9,595 feet. A little to the south is the Pirin Planina, whose greatest heights are only a few hundred feet lower. Similar altitudes extend eastward for over 100 miles before the land drops to the Maritsa Valley. The Rhodope Mountains are drained southward by the Struma and Mesta (*Gr.*: Nestos) Rivers, which cross northern Greece to the Aegean Sea. There are a number of small, fertile basins in the western part of the Rhodope, where agriculture is carried on, but the range as a whole is unproductive and inhospitable, and snow lies for part of the year on the higher ground. Its summits have even

been fretted by ice action. Much of the lower slopes is forested, and only the lumberman and the transhumant shepherd find employment.

ECONOMIC DEVELOPMENT

A higher proportion of the people of Bulgaria is engaged in agriculture than of any other European country, and nowhere, except in Albania, has manufacturing been less developed. The former large estates were broken up into small holdings, which were generally very small by western European standards. These have since been collectivized, and Bulgaria is today one of the most thoroughly collectivized of all the east European countries. The conditions of cultivation, as in other Balkan countries, are very poor, and an overgreat concentration on cereal crops does not give the soil an opportunity to recover. It was estimated after the Second World War that nearly a quarter of the farms had no draft animals and nearly a fifth, no plow. Animal husbandry is important, as so large an area is suited only to rough grazing. In particular there are very large flocks of sheep, whose wool is used in the domestic cloth industry. Industrial crops, such as



Turkish-style homes, with no windows on the first floor and few on the second, to give a maximum of privacy, are still common in Bulgaria. This photograph is of a small alley in Trnovo. (N. J. G. Pounds.)

part six

Mediterranean Europe

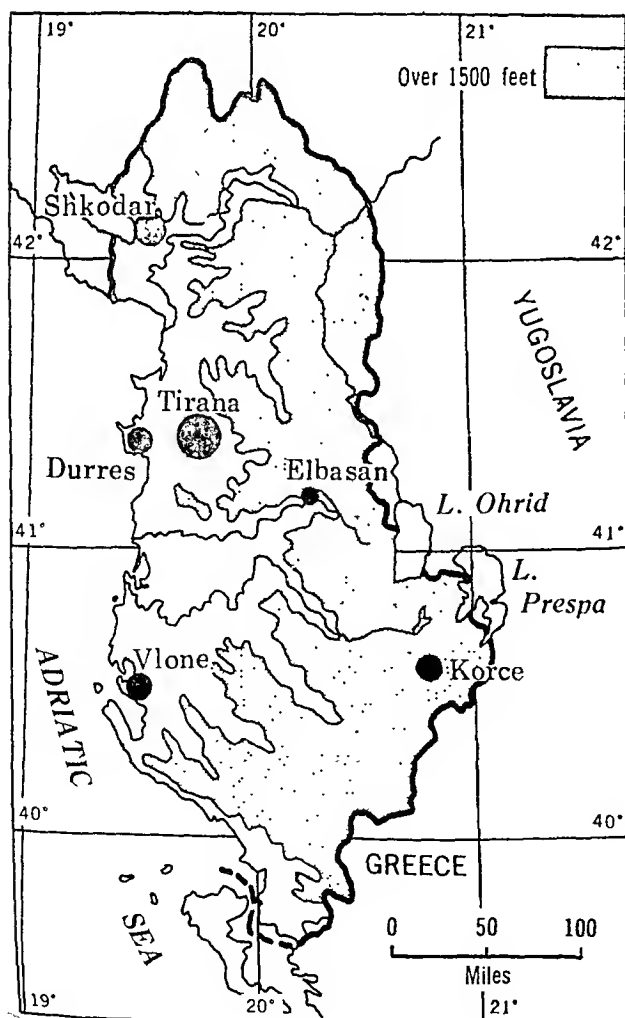
the last war less than in any other European country. Its direction was formerly very largely toward the industrial countries of central and western Europe, but is now almost entirely with the countries of the Communist bloc. Bulgaria's foreign trade is dominated by the export of foodstuffs and the import of fuel and manufactured goods.

Albania

Albania is separated from Bulgaria by 100 miles of Yugoslav territory, and the only reason for including it in the same chapter is their common relationship to the Serbs and Macedonians. Albania is made up of an alluvial plain, backed by

high, rugged mountains, with the high Albanian Alps shutting it in on the north and the mountains of Epirus (*Gr*: Epeiros) on the south. The country is an enclave on the borders of Greece and Yugoslavia. The population of about 1,665,000¹ is economically backward. The majority are Moslem, and they are further distinguished from their Greek and Slavonic neighbors by their language, which is older than and different from those of most of Europe, though it has absorbed a good deal of Serb and Italian. A number of Albanians live in southern Yugoslavia, and Albania has laid claim to this territory but has hitherto lacked the political and military power and the allies to enable it to enforce its claims.

Albania appeared on the political map of Europe as late as 1912, very largely as a result of the strategic importance of this small area. Through Albania lie routeways of potentially great importance, linking Macedonia and the Morava and Vardar Valleys on the one hand with the Adriatic on the other. These routeways were important links within the Roman Empire, and continued in use through the Middle Ages. Serbia in the nineteenth century hoped to acquire an outlet to the sea by this route, but was blocked by the aspirations of Italy and the jealousy of the Austro-Hungarian empire. The rivalry which developed was appeased only by the creation of an Albania, independent of all these contenders. During the interwar years an attempt was made by King Zog of Albania, with the help of Italian capital, to develop the country. A small oil field was opened up, but despite this Albania remains an overwhelmingly agricultural country, and the least developed in Europe. Tirana (136,000), the capital, and Vlone (*It*: Valona) and Durrës (*It*: Durazzo), the chief ports, have the air of modern towns, though the last two have less than 40,000 inhabi-



¹ Population figures are 1961 estimates.

FIGURE 29-3. Albania.

The Mediterranean Region

30

The Mediterranean region is the most distinctive of all the major regions dealt with in this book. All other titles—"western," "northern," "central," and "southeastern"—are in some degree vague, but "Mediterranean Europe" has a precise meaning. This degree of definition is due to the similarity of climate over the region, and to its striking contrast with that of all other parts of Europe. The Mediterranean, we have seen in Chap. 2, has a climate distinguished by mild winters, when the rainfall mostly occurs, and by hot dry summers. The greatest heat, occurring during the season of drought, limits the natural vegetation to a sparse covering of dry, aromatic scrub or thin forests of drought-resisting trees. The climate and vegetation of the Mediterranean are considered more fully in Chap. 2.

The climatic character of the region restricts its agriculture. Grass dries up during the summer, and then there is little food for stock. Pastoral husbandry is limited to those animals—chiefly sheep and goats—which can live on this poor growth. Cattle are few. Crops grow during the winter and spring and are harvested in the early summer. Fruit crops are relatively important. The olive, which requires freedom from frost and can stand hot and dry conditions, is the typical tree crop. So representative is the olive of the

But the individuality of the Mediterranean does not spring only from the beauty of its natural landscape and the delights of its climate. The Mediterranean region is the home of Western civilization. Close to its shores, in the Nile Valley and in the riverine lands of the Middle East, fundamental steps in early human progress were taken. Man learned to plant and irrigate his crops, to improve the wild plant species, to carry out engineering works to supply his fields with water, to build towns and live in them, and to practice the arts and crafts. Material civilization spread to the Mediterranean shores and was carried to Cyprus and Crete, the "forerunner," as it has been called, of Western civilization, and thence over the islands and peninsulas of Greece to Sicily, Italy, and the rest of the Mediterranean region.

The debt of Greek civilization to that of Crete, and of Cretan to that of Egypt, is difficult to evaluate, but the debt of Western civilization to ancient Greece is profound and obvious. Greek civilization grew up around the Aegean Sea, where numerous "city-states" each occupied a small plain between the mountains and the sea. Civilization was urban. The Greek was an agriculturalist, but the refinements of city life—good buildings, the theater, the conversation of the marketplace—attracted him. Material needs are less here than in the north of Europe and more easily satisfied, and there was leisure for philosophy and poetry at a time when the inhabitants of northwestern Europe were fully employed in an unrewarding agriculture that left little time for leisure and only a slender margin for the pursuit of the better life.

Greek civilization spread around the shores of the Greek peninsula and extended to Sicily and Italy, to Libya in North Africa, to the shores of Asia Minor, even to the southern coast of France. It did not permeate the whole Mediterranean, but the civilization of Rome became truly Mediterranean in extent. The Roman Empire expanded outward from the city of Rome in central Italy from the fifth century B.C. onward. From Italy it spread to Sicily in the third century B.C., then to Spain, Greece, North Africa, and the Middle East. By the beginning of the Christian era it enclosed the Mediterranean Sea.

Greek civilization had been spread by the foundation of colonies from the mother cities in Greece. The Roman Empire, by contrast, spread by settlement but also by the conquest and assimilation of Mediterranean peoples. Saint Paul, a Jew from Tarsus in Asia Minor, was a Roman citizen; so also was the African, Saint Augustine of Hippo (Bône) in Algeria. The Roman Empire was essentially "thalassic," based upon an internal sea which served as a bond of union between its parts. Commerce moved freely over the Mediterranean; Rome was provisioned with grain from Egypt and North Africa. All roads led to Rome. The Mediterranean was a functional and administrative unit.

This unity was threatened by the invasion of the so-called "barbarians" in the fifth and sixth centuries and, according to one interpretation of classical and medieval history, was brought to an end when the Arabs occupied the coastlands of the Middle East and North Africa and spread into Spain. The sea became a frontier. The cities on the coast of southern Europe, which had formerly been centers of commerce, now became fortresses. The coasts were even raided by pirates or corsairs, and the Barbary pirates from the African coast were a danger down to the early years of the nineteenth century. Numerous attempts were made by the states of Europe to reestablish their control over the shores opposite. The Crusades, springing from a mixture of religious and commercial motives, led to a temporary occupation of Egypt and the Holy Land. At this time trading cities, especially the Italian cities of Venice and Genoa, profited from the revival of trade with the Middle East.

But it was not until the nineteenth century that a degree of unity was restored to the Mediterranean region. The French and the British interested themselves in Egypt. Beginning in 1830, the French conquered Algeria and later extended their control to Tunisia. The British occupied Egypt, and early in the present century, Libya was conquered by the Italians. The southern shores of the sea thus came, as they had been in the period of the Roman Empire, to be controlled by European powers.

So far we have considered the similarities which give the Mediterranean region a degree of unity. Only part of the northern shore is European; the rest of its perimeter is Asiatic and African. The Asiatic and African parts of the Mediterranean region were invaded from the seventh century onward by Moslem peoples. The racial composition of these regions may not have been greatly changed, but in religion and culture they became Islamic. Today these regions are scenes of great poverty. Overcrowding, lack of capital and of education, and rotten and corrupt governmental institutions have characterized them to a far greater degree than the Danubian and Balkan countries that have just been considered. In recent years material progress has been made in Turkey, where a breach has taken place between the state and Islam. But elsewhere, except in Israel, material progress has not been particularly rapid, and much of the area continues to live under conditions of poverty. European imperialism in the Middle East and North Africa has ended, and it has yet to be shown that the change will make a great difference in the level of human welfare in the region.

It must not be assumed that the European part of this region is in all respects better off. The Spanish, Italian, and Greek peninsulas were raided or invaded by Islamic peoples for over 1,000 years.

They have been continually troubled by war and the material destruction that war brings with it. The southern parts of all three peninsulas have been reconquered by Europeans from Islamic peoples, and the lands divided in large estates, or *latifundia*, among the conquerors. These large estates, still in part owned by absentee landlords and cultivated by a poor, uneducated, and ill-equipped peasantry, continue to characterize parts of southern Spain and southern Italy. The problem is not that these regions cannot accumulate the material wealth necessary for a better life or, except in Italy, that the population is too large, but rather that the wealth has passed through the hands of the landowners into unproductive channels. We shall touch again on this agrarian problem in the next three chapters.

Despite the precocity of the Mediterranean region in the growth of civilization, it is not naturally rich or well endowed. It has little good soil. Most of its area is mountainous, and much is heavily eroded. The climate precludes animal husbandry on a large scale, with a consequent loss both of manure for the land and of fat and meat for human consumption. There are very few mineral resources and almost no coal. The topography is suited for the generation of hydroelectric power, but little use can be made of streams that run dry in summer.

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Mediterranean region that its climate has been described as coextensive with the olive. The grapevine is also grown widely, and wine is one of the commonest drinks. The grain crop most extensively grown is wheat; other cereals, especially barley, are of secondary importance. Beans and vegetables are grown, but the staple foods of the Mediterranean are bread and wine, and olive oil supplies the fat required in the human diet.

The Mediterranean region is further distinguished by its hilly or even mountainous terrain. For about three-quarters of its circumference, the Mediterranean Sea is bordered by mountain ranges. In general these drop steeply to the water. In places there are small coastal plains. Only along the southeastern shore is there a large and continuous area of low-lying and flat coast. The region under consideration encloses the Mediterranean Sea; nowhere does it stretch far from the water. Only in central Spain, northern Italy, and the interior of Turkey are conditions met with that cannot be described as marine.

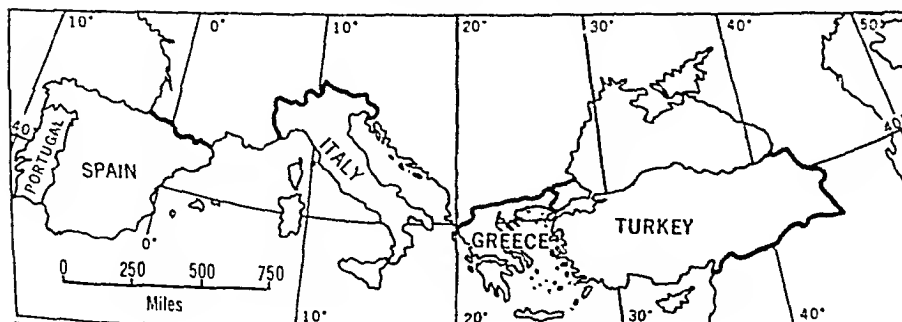
The Mediterranean Sea is highly irregular in outline. Many peninsulas stretch into the water and are continued in chains of islands. This means that marine conditions are carried far into the land while at the same time no part of the sea is far from some island or headland. This assisted early man to become a sailor, allowing him to "hop" from one island to another until he had mastered the craft of navigation.

The sea is itself divided into a western and an eastern basin, cut off from each other by the narrows between Sicily and Tunisia. In the western

basin are the Balearic Islands, as well as the larger islands of Corsica and Sardinia. Opening off the eastern basin is the deep, narrow Adriatic Sea and the smaller, island-studded Aegean. Navigation conditions are generally good, especially during the summer months. The atmosphere is clear, and visibility excellent. The sea is almost tideless, the rise and fall of the water being scarcely perceptible in most places. The weather is more predictable than in the stormy northwest. In ancient times the summer was the season for navigation; danger was to be expected if the frail craft sailed too late in the year, as did the boat on which Saint Paul set sail for Rome. The shores of the Mediterranean have a wealth of good natural harbors, many of them naturally free from silting. However, the Mediterranean Sea has never been rich in fish. Its fisheries—the sardine, anchovy, and tunny—are the most important species—are of only small and local importance.

Hills and the sea combine with the fair, warm climate to give the Mediterranean its individuality and charm. It has always attracted peoples from the colder, damper, and more cloudy lands of the north. The "barbarian" invader of the Dark Ages, the medieval pilgrim, and the modern tourist all witness to the attractions of the region. Its beauties have been the subject of endless writings, and a very fair "geography" could be put together from the poets and travelers of the past. Shelley, Byron, and Browning among the English poets, Goethe among the German, and Henry James among the American writers have all succumbed to its charms.

FIGURE 30-1. Countries of Mediterranean Europe.



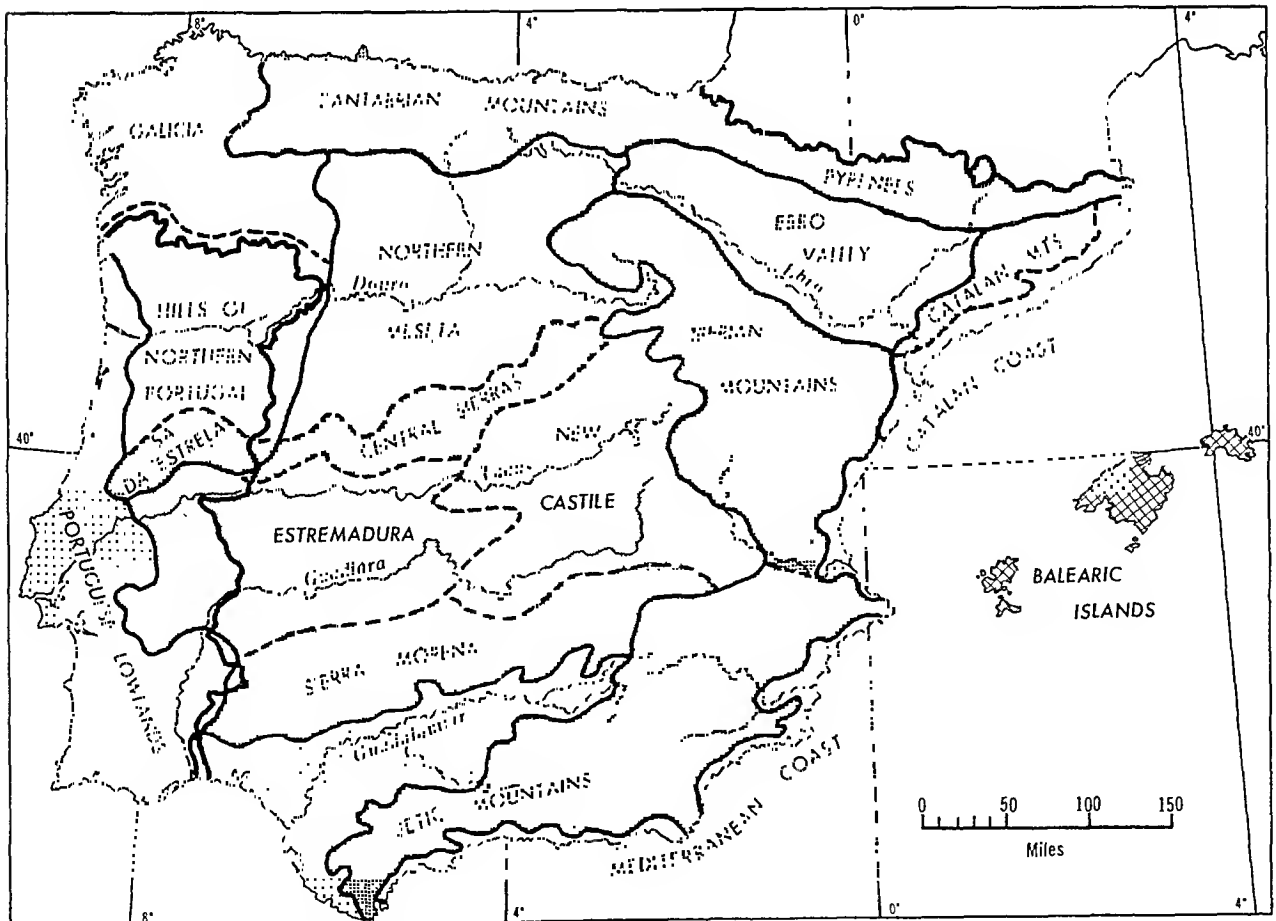
snow. Across the plains between these ridges flow rivers whose deep valleys form yet further obstacles to movement between north and south. Mountains, forming part of the Alpine system, have been folded against the northern and southern edges of the Meseta. Around the margin of the land, especially on the west and east, are narrow, disconnected strips of low-lying land, which are the most densely populated and most productive in the peninsula. Over much of the Meseta, shallow deposits of clay and sand have been laid down in recent geological times, and give rise today to a level plain.

Most of the peninsula is drained westward to the Atlantic. The Duero (*Port*: Douro), Tagus (*Sp*: Tajo; *Port*: Tejo), Guadiana, and Guadalquivir are long and important rivers, each draining one of the basins between the mountain ranges of the

Meseta. The divide between the rivers flowing to the Mediterranean and the Atlantic lies toward the east: of the rivers which discharge to the Mediterranean, only the Ebro is of any considerable size. Others are short torrents in the rainy season and dry riverbeds at other times. Only the rivers of the north show a regular flow, though even here in summer the discharge is much reduced. Over the rest of the peninsula the summers have little rainfall. The torrent beds run dry, and the larger rivers are reduced to pools of sluggish water, slowly drying up in the heat of the summer sun.

The dominant physical region of the Iberian peninsula is the Meseta. It contains the present capital of Spain, Madrid, and most of the peninsula was united by being annexed to the province of Castile (*Sp*: Castilla), which is very broadly

FIGURE 31-1. Spain and Portugal: landform regions.



This renewed interest in the Mediterranean Sea was in part due to its revival as a highway of commerce. In the nineteenth century the ports of southern Russia, particularly Odessa, began to pour grain into the European market. This came through the Turkish "Straits" into the Mediterranean and thence to the ports of western Europe. In 1869 the Suez Canal was opened. At once ships began to abandon the long and hazardous route around the Cape of Good Hope and to take the shorter route through the Red and Mediterranean Seas. Commercial nations, of which Great Britain was the most important, became interested in protecting this new route. Cyprus was taken by Great Britain in 1878, and Egypt was occupied in 1881. Gibraltar at the western entrance of the Mediterranean and the Maltese group in its midst were already in British hands.

During this modern period, which was ushered in 150 years ago when Napoleon tried to conquer Egypt, no single power has succeeded in controlling the sea. Great Britain, occupying several strategic bases, has come nearest, but it has been Italy, self-constituted heir to the Roman Empire, which has voiced most loudly its claim to control "our sea."

Since the end of the Second World War, France and Italy have lost control of their dependent territories along the North African littoral. Spain retains only a few footholds of trifling importance, and Great Britain has withdrawn from Egypt and given independence to Cyprus and Malta. In all, six new states have been created, and the region is today politically more fragmented than ever before.

This political division serves to emphasize the importance of the narrow waterways by which the Mediterranean Sea may be entered. In recent years the objects of the old imperial powers have been focused on their attempts to retain or even to regain control over these highly sensitive areas:

1. The Straits of Gibraltar are dominated by the rock fortress of the same name. Until late in 1956 the coast opposite, with the city of Tangier, was subjected to an international regime, in an attempt to prevent this vital waterway from falling under the control of a single power.

2. The Bosphorus and Dardanelles, the "Straits" (see page 442), are in the hands of Turkey, which has power to fortify their banks and thus can prevent the movement of ships between the Black Sea and the Mediterranean. Turkey is under treaty obligation to permit the free movement of peaceful commerce, but that of warships is subject to certain restrictions. The Soviet Union takes great exception to the power which Turkey thus enjoys—but has not used in recent years—to restrict the movement of shipping through the Turkish Straits.

3. The Suez Canal lies outside the scope of this book, but it is impossible to discuss the Mediterranean Sea without some reference to it. The canal was dug by a private company and was opened in 1869. Ownership was largely in the hands of the British and French, but by the terms of the original charter the canal would have reverted to Egyptian possession in 1968, if it had not already been nationalized in 1956. After 1881 British troops were stationed in Egypt, until the garrison was withdrawn in 1956. In 1888 the powers vitally interested in the canal agreed that it should always be kept open and its use always available to the shipping of all nations. In 1956 the Egyptian government nationalized the canal, and later in the same year, fearing that it might use its power to strangle this artery of their commerce, the British and French, supported for different reasons by the Israelis, attacked the canal. For many months after this ill-judged action the canal was closed. Since being reopened in 1957, its administration has been in the hands of the Egyptians, who have consistently acted according to the spirit of the international agreements regarding the canal.

Political control of certain islands and bases within the Mediterranean is scarcely less important than that of its entrances and exits. The strait between Tunisia and Sicily is dominated by the French naval base of Bizerte. To the east are British naval, air, and military bases in Malta and Cyprus. The Italian government formerly had similar bases on the island of Pantelleria, in the Sicilian Channel, and on the Dodecanese Islands (see page 438).



Meseta villages lie bare and exposed; this one is situated in the dry, bare plains of La Mancha, immortalized by Don Quixote. (N. J. G. Pounds.)

The central Sierras are a series of short mountain ranges, reaching heights of considerably over 6,000 feet, trending obliquely across the Meseta from southwest to northeast. Between each of the sections of the chain are routeways which present no serious difficulty to the traveler except in winter. The mountains are highest and least easily crossed in the Sierra de Guadarrama, to the north of Madrid, but both to the northeast and to the southwest are defiles which separate the Sierra de Guadarrama from the Sierras that lie to the west and east, continuing the general direction of the Sierra de Guadarrama. These depressions are used by railways, and the small town of Avila commands the approaches from the north. To the west, short, detached Sierras stretch into Portugal. Toward the east the central Sierras merge into the ranges and the high plateaus which constitute the eastern margin of the Meseta.

The Sierras are built of granite and schist. They have not been fretted, like the Pyrenees, by the action of glaciers. Their summits are flat or

rounded, and they lie along the skyline of the Meseta like a wall, without any appearance of gateway or opening. Many ranges of far greater altitude are more penetrable than the high Sierras of Spain. The slopes are in part forested with cork oak and conifers, but the woodland cover has been destroyed over very large areas, and the land may have only a thin cover of grass, shrubs, and stunted trees.

To the south of the central Sierras the plateau of the Meseta expands to an area almost twice as large as the northern basin. Toward the east it is covered, as in the north, by the level plains of young, soft clays and sandstones. In these the Tagus and Guadiana have incised their deep valleys. The plains of La Mancha, lying at about 2,000 feet above the sea, are dry, bare, and almost level. In winter the cold is severe; in summer the scanty vegetation is dried up and the land parched and burned to a deep red. The vegetation over large areas is only sparse esparto grass which provides a winter feed for flocks of sheep. The rest is

Spain and Portugal

31

The Iberian peninsula is cut off from the rest of Europe by the mountain chain of the Pyrenees and is less open to continental influences than any of the other Mediterranean peninsulas. So distinct is it from Europe that it has been said that "Africa begins at the Pyrenees." The topography of Spain and Portugal has hindered the growth of communications; the climate has reduced large areas to a semidesert. Military campaigns in the Iberian peninsula have been fraught with great hardship. It is a land in which large armies are said to starve and small armies get lost. It is furthermore an area in which a regional or local spirit survives more strongly than in any other country of western Europe.

THE MESETA

The Iberian peninsula consists essentially of a tableland, the Meseta, built of hard rocks that are much folded and eroded, but generally lie at a height of between 2,000 and 3,000 feet above the sea. Across the surface of this plateau run hill ridges, roughly from west to east. These ranges of hills are in places high, and in winter the more northerly passes are closed by

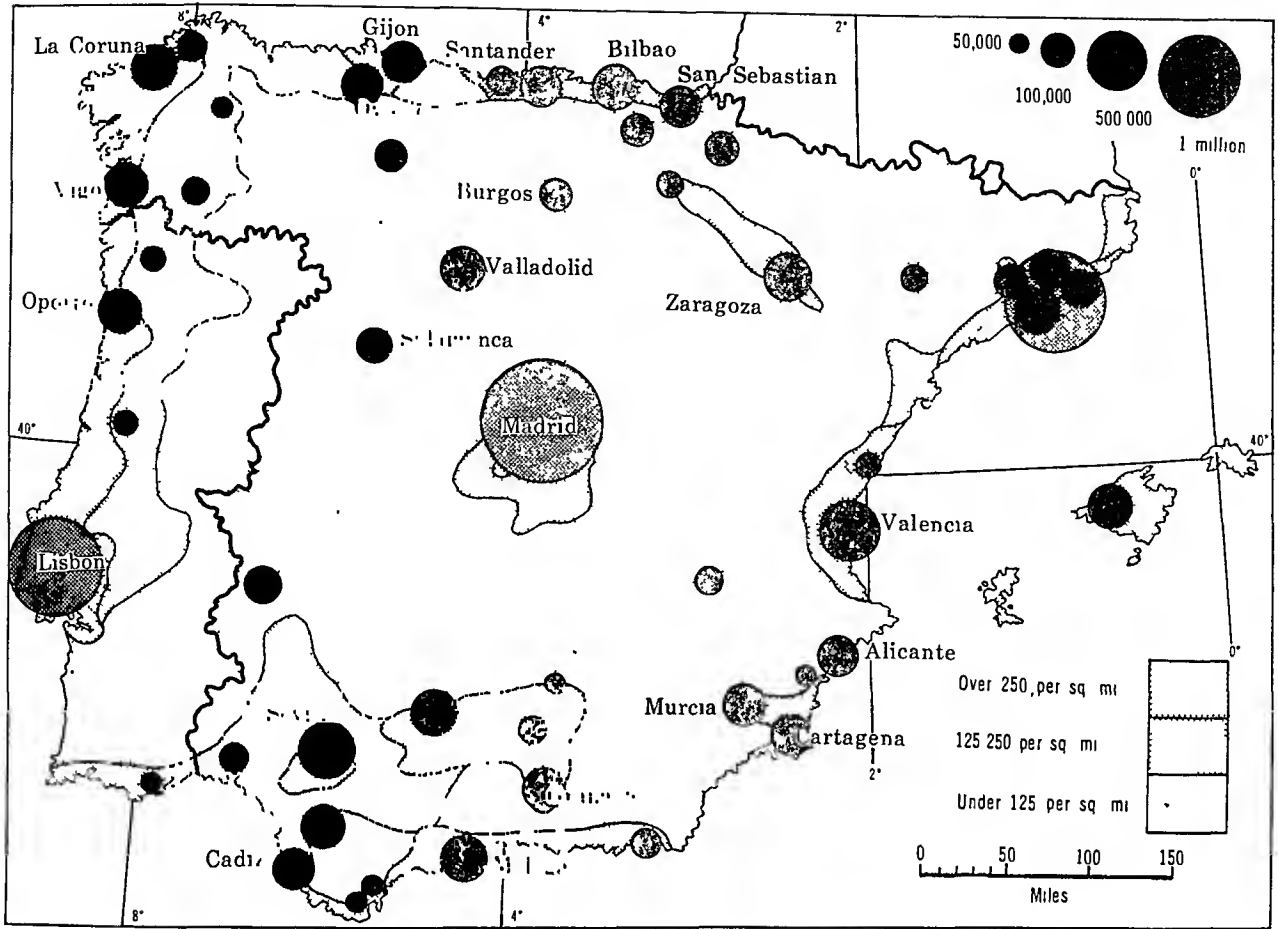


FIGURE 31-2. Spain and Portugal: distribution of population and larger cities.

Ebro, have together cut a broad depression which divides the range into a northwestern and a southeastern part and have created the most important transverse routeway. To the northwest of this depression the mountains reach heights of 7,000 feet. To the southeast the Montes Universales and Sierra de Gúdar are only a little lower.

The eastern ranges of the Meseta have formed a far more serious barrier to movement than have those which enclose the Meseta on the south. The distinctiveness of Castile on the one hand and of Aragon and Catalonia on the other is in part a consequence of this physical barrier. Only two naturally marked routeways cross the mountains: the one already mentioned, which follows the Jalón and Henares Valleys, and the one which

reaches southward from the Jalón Valley through Teruel to the Mediterranean shore at Valencia.

Not only does the northern Meseta differ from the southern in climate and to some degree in relief; the history and current problems of the two portions of the Meseta are distinct. The Moors, who invaded Spain in the eighth century, occupied the northern Meseta for only a short period of time. Its climate was unsuitable to them, and they yielded ground to the Spanish people without much resistance. But the southern Meseta was held for a very much longer period of time. Its dry steppe was less tempting to Christian settlers from the north, and it was reconquered from the Moors by a greater effort on the part of the Christian leaders.

coterminous with the plateau. Around it are the mountain ranges and the marginal plains. In some of the latter, especially in Catalonia (*Sp*: Cataluña), Valencia, Andalusia (*Sp*: Andalucía), Galicia, and the Basque province, there is an intense local patriotism which shows itself in hostility to Madrid and the Meseta.

The central tableland of Spain is divided by the central Sierras into a northern and a southern part. Both are composed of ancient rocks, covered in parts with a deep deposit of young clays, sandstones, and limestones. These beds tend to form monotonous level plains. Where the surface rock is limestone or sandstone, the soil is often dry and infertile, vegetation is sparse, and agriculture little practiced. Rivers have deepened their courses below the plateau level. Harder beds of limestone sometimes form a resistant cap, protecting the steep-sided, isolated hills that are a feature of the Meseta; sometimes the softer clays on the valley sides have been scoured and eroded and a "bad-land" topography produced.

In the northern basin there is a low rainfall.

The poorer soil is grass-covered, and wheat is grown over the plains of Tierra de Campos and Tierra del Pan. The northern part of the Meseta is drained by the river Duero, which rises in the hills to the east. Villages are few and widely spaced: most are nucleated and built of mud or local stone. There are few towns. Valladolid (159,000)¹ lies near the center of the basin, a short distance to the north of the Duero, and is a road, rail, and market center. To the northeast is Burgos (84,000); to the northwest León (77,000). Both lie close to the mountains and constituted bases from which the little Christian states of the northern mountains advanced southward to reconquer the peninsula from the Moslems. Palencia, Zamora, and Salamanca (93,000) are small market towns and route centers and form, along with the towns already mentioned, a broad network of widely spaced urban centers.

¹ The population in 1963 is given for cities of over 50,000.

The immense cathedral of Segovia rises above the rolling, almost treeless, plains of Old Castile. (*N. J. G. Pounds.*)



Burgos lies in the shallow valley of a tributary of the Douro. Its extravagant medieval cathedral rises from the bare plains of Old Castile and contrasts with the austerity and poverty found around it. (N. J. G. Pounds.)



medieval trade and even rivaled Venice and Genoa. This part of Spain is oldest in civilization. Higher cultures entered through its ports and spread slowly through the peninsula, until at last they reached the wild and, in early times, savage northwest. Today eastern Spain is foremost in industrial and commercial development. Barcelona is a modern, forward-looking city in contrast to those of the Meseta, which are still in many respects medieval.

The Ebro Valley northeast of the Meseta stretches for 250 miles from the point where the river Ebro leaves the Cantabrian Mountains to its delta in the Mediterranean. The plain varies in width from 50 to 100 miles. It is cut off from the sea by the low, narrow range of the Catalan Mountains, across which it flows in a narrow valley a short distance above its delta. The plain is almost completely surrounded by mountains which cut it off from rain-bearing winds. The annual rainfall in the center is less than 15 inches a year, and a large area, known as Los Monegros, is covered by a thin steppe vegetation similar to that found in La Mancha. The relief of the plain is far from level. The soft beds have been eroded to form a great number of isolated, flat-topped hills. Water supply is a serious problem, and settlement is sparse. Irrigation is practiced in the valleys of some of the northern tributaries of the Ebro, and the Gallego and lower Segre Valleys are both well cultivated with the help of water brought down by the Pyrenean tributaries of the

Ebro. Most of the few towns in the Ebro Valley lie on the river. Zaragoza (343,000) lies at an ancient crossing of the river near the northern opening of the Jalón Valley.

The Catalan Mountains rise to heights of over 4,000 feet but are broken by the water gap of the Ebro and, to the northeast, by the narrow, rocky valley of the Llobregat. The climate is wetter than that of the plains which they shelter, and the vegetative cover is thicker, with conifers and broad-leaved evergreens, such as the cork oak. But inland, *matorral*—low, evergreen, aromatic shrubs—takes over and passes gradually into the steppe of the interior, except where irrigation has made agriculture possible.

Between the mountains and the coast of Catalonia is a narrow plain separated from the sea by a low, narrow limestone ridge, which forms a picturesque and rocky coast. The lowlands and the coastal hills are well cultivated, and grain crops, including rice on the irrigated lands, and southern fruits are grown. Tarragona, on the coast, is a center of the wine trade but in most respects has been eclipsed by Barcelona. Barcelona (1,634,000) is a city of Carthaginian origin. An isolated hill, Montjuich, provided a defensive site, beneath whose shelter and protection the modern city has grown up. It was of commercial importance in the Middle Ages, suffered somewhat with the annexation of Catalonia to Castile, but in modern times has developed as the most important industrial and commercial city of Spain. Inland from

covered with *matorral*, a low scrub of drought-resisting plants.

In the western part of the plains the cover of young rocks thins away and the underlying foundation of ancient rocks is exposed. The surface is more broken. A number of hill ridges appear, conforming with the general direction of the central Sierras. These include the Sierra de Toledo and Sierra de Guadalupe; lower ranges are prolonged westward into the lowland plains of Portugal. These more southerly Sierras are very much lower than the central, and they are so interrupted by gaps that they can hardly be said to constitute a physical barrier to movement. The southern Meseta is drier than the northern, its summers hotter, and its winters less severe. Natural vegetation becomes increasingly sparse. Forests of Mediterranean evergreens occur in the mountains, but elsewhere the vegetative cover is a thin *matorral* scrub which in La Mancha degenerates into steppe. The region provides winter feed for animals but in summer is parched and barren.

Much of the southern Meseta is sparsely populated. Villages and towns are less frequent than on the plains north of the central Sierras. They are smaller and poorer, and such character as they possess they owe to their striking situations. Many lie on the summits of isolated hills, on the edges of the small plateaus, or *paramos*, or perched high upon the banks of the deep and gorgelike valleys. The rivers are valueless for navigation and are a barrier to movement.

The city of Toledo lies on the northern bank of the Tagus within a sharp bend of the river, protected by the swift current as well as by the steep crags above which it lies. The town is of pre-Roman origin. In the Middle Ages it became a fortress to protect the Christian state of Castile from the Moors. Its fortress, the Alcazar, destroyed during the Civil War and now rebuilt, together with the great Gothic cathedral, still dominate the little town.

Madrid (2,443,200) lies some 30 miles to the north of the Tagus. It is, for Spain, a modern town. The settlement is old, but the capital was not located here until the sixteenth century, after the political unification of the peninsula. The

site for the new capital was chosen because of its central position in Spain. About 20 miles to the northwest is the Escorial, the palace of the Spanish kings. The city has failed, however, to focus the loyalties of all Spaniards to anything like the same degree that Paris has those of Frenchmen. They tend to look still to their local or regional capitals. Madrid has become the center of road and rail communications. It is a center of banking and commerce, but industrial activities tend to be limited to the manufacture of consumer goods.

The valley of the Guadiana is less populous and has fewer towns than the Tagus Valley. Ciudad Real is the center of the basin of La Mancha. Badajoz (101,000), a town of some strategic and historical importance, lies on the Guadiana close to the Portuguese frontier, where the ranges of the Meseta draw together and leave only a narrow passageway between the lowlands of Portugal and the plateau of the southern Meseta.

On the south the Meseta is bounded by the Sierra Morena. This range rises gradually from the plains of Extremadura (*Sp*: Extremadura) and La Mancha and drops steeply to the low-lying plains of the Guadalquivir. The tributaries of this river have cut back into this southern wall of the Meseta, producing a rugged scarp. The valleys of these rivers are followed by the few roads and railways that cross the Sierra Morena. The Sierra Morena extends, west of the lower Guadiana, into southern Portugal and terminates in the cliffs of Cape Saint Vincent. The Sierra Morena is more highly mineralized than other parts of the Meseta. Toward the west are the famous copper mines of Rio Tinto, which have been worked since classical times. Almadén, on the northern slopes of the range, has been important for its mercury, and Linares for silver and lead.

The mountains which bound the Meseta on the east resemble the Sierra Morena. They rise very gradually from the plains of both Old, or northern, and New, or southern, Castile and drop more steeply to the valley of the Ebro or to the Mediterranean. The name Iberian Mountains is often given to these hills. The Henares, a tributary of the Tagus, and the Jalón, which flows to join the

The Guadalquivir Valley broadens westward to the Atlantic. Unlike the Ebro Valley, which in certain other respects it resembles, the Guadalquivir Valley is exposed to oceanic influences. Rainfall is higher, winters warmer, and the summers very hot. Much of the plain is flat, and west of Seville (*Sp*: Sevilla, 460,000) stretches a low flat plain, known as Las Marismas, across whose salty pastures and wastes the Guadalquivir and its distributaries meander toward the sea. Along the coast the Atlantic winds have piled up a belt of sand dunes. Above Seville the Guadalquivir keeps close to the edge of the Sierra Morena. The greater rainfall and the relative abundance of water for the purpose of irrigation have given to the Guadalquivir Valley a far greater agricultural importance than has the Ebro Plain. Wheat and vegetables are grown in the valley bottoms, vines grow on many of the lower hill slopes, and olive groves cover large areas.

Seville lies on the Guadalquivir near the junction of the alluvial plain of Las Marismas with the more undulating land in the center of the region. It lies 60 miles from the sea and has been a city and port at least since Roman times. It is now a modern industrial town with engineering and food-processing industries. Córdoba (207,000) lies some 80 miles further upstream and, like Seville, was a Roman town. It became one of the most important cities of the Moslem world and is now famous for its Moorish architecture. The cathedral of Córdoba was formerly a mosque. Cádiz (123,000) lies at the end of a narrow peninsula which partially closes the Bay of Cádiz. It was a port of great importance during the period of Spanish imperialism from the sixteenth to the eighteenth centuries. Its site is restricted, and the resources of its hinterland limited. It now exports the wine of southern Spain, olives, and cork. The town of Jerez de la Frontera (132,000), from which the name "sherry" is derived, lies only about 12 miles from Cádiz. On the northern edge of the Guadalquivir Plain and close to the mouth of the Tinto River is the small port of Huelva, which handles copper export from the Minas de Riotinto. It was from Palos de la Frontera, across the Tinto, that Columbus sailed in 1492.

The Betic Mountains. The Betic Mountains, which shut in the Guadalquivir Valley on the south, are made of rocks very much younger than those of the Meseta itself, and their summits attain heights very much greater than those of the central Sierras. The Betic range is really divided into two parallel belts of mountain separated from each other by a long and narrow depression. The more southerly of these attains the greatest altitudes and presents the most rugged appearance. Beginning near Gibraltar, it extends northeastward to Cape Nao, a distance of 350 miles. It is broken by several transverse valleys into fairly short segments, of which the highest is the Sierra Nevada, upon which the snow lies for much of the year. Their highest point, the Mulhacén, reaches a height of 11,240 feet. In this small area truly alpine landforms are found.

The Sierras to east and west are lower but would still present a serious barrier to movement if gaps had not been opened between them by rivers. These are followed by roads and railways into the central depression and through the whole mountain mass to the Guadalquivir Valley. The northern range of hills is lower and yet more broken. A number of small towns lie along the northern foothills where the rivers spread out over the plain of the Guadalquivir.

The depression between the two ranges expands at intervals into fertile, irrigated basins, in which are small market towns. In one of these depressions "the road twisted down from the mountains, and suddenly beneath its heights Granada spread, bosomed in its wide, high plain, climbing over its three hills, towered and valleyed, delicately shadowed in the evening light, guarded by the cold lilac peaks of the Sierra Nevada."¹ In the midst lies the Alhambra, the Moorish palace and castle, crowning its steep, wooded hill, the greatest and the loveliest relic of the long period of Moorish domination and proof of the high civilization which these people attained at the peak of their power.

¹ Rose Macaulay, *Fabled Shore*, London, p. 125, 1949.

This episode in the history of the peninsula is reflected in the land tenure and social structure of the two regions. The north is characterized by medium-sized holdings and by a peasantry which, though poor, is not depressed. The south is a land of great estates, originally carved out by the conquerors in the late Middle Ages. The abject poverty of the peasant, working on the great estates, contrasts to the wealth of the absentee "grandee." The problem of the great estates of southern Spain is similar to that of southern Italy (page 423).

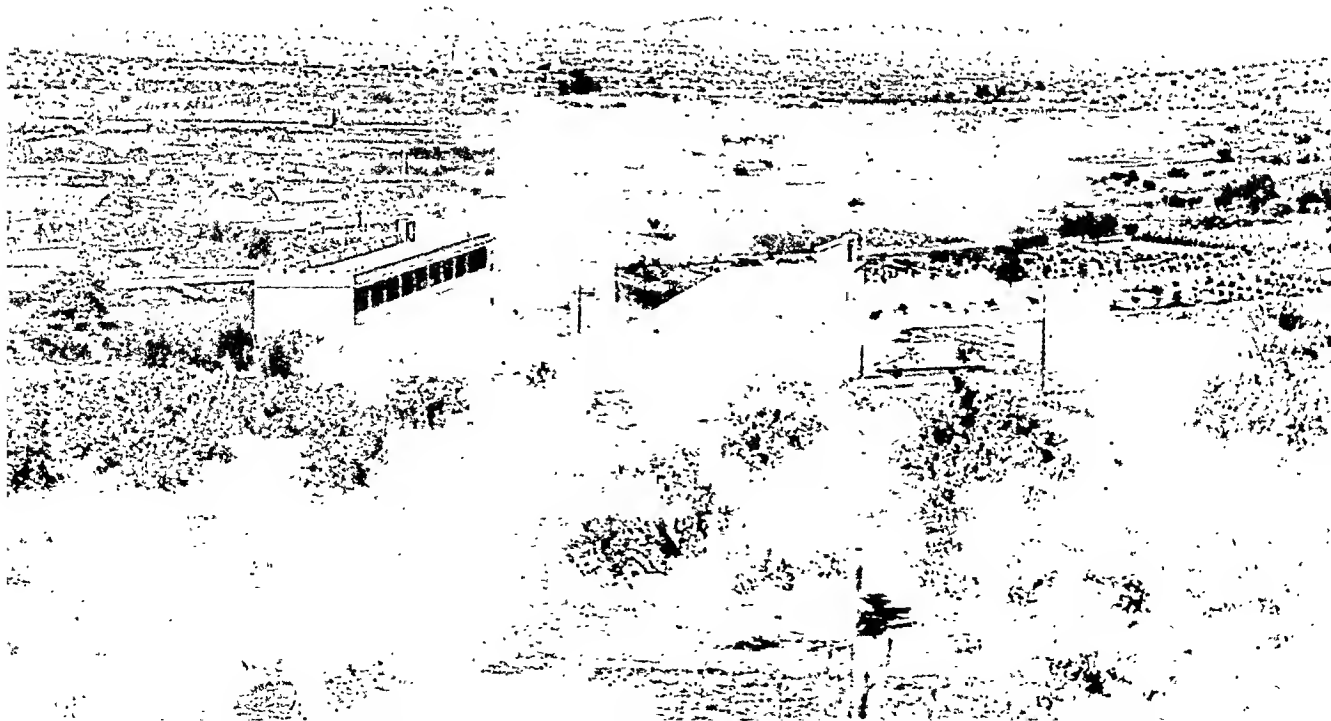
The problem of agriculture in the southern Meseta is not that it is impossible but that it requires a greater capital in irrigation and other works than has ever been made available, at least since the withdrawal of the Moors, and that the land is best under vines or tree crops, such as olives and the cork oak. This form of agriculture represents a long-term investment and necessi-

tates the mechanism for the export and sale of these specialized products. Much of southern Spain is still too primitive for this.

EASTERN SPAIN

Between the Meseta and the shore of the Mediterranean are areas of low-lying land. The largest is in the Ebro Valley; the smallest consists merely of a few fields between the mountains and the sea. They lie on the dry side of Spain, cut off from rain-bearing winds by the Meseta. Winters may be cool in the Ebro Valley, but in general this is an area of very hot, dry summers and mild winters with a rainfall too small in many parts for agriculture. This coast, however, fronting the Mediterranean as it does, has been open to civilizing influences from Greece and Italy. Many of its cities derive from ancient times, founded by the Carthaginians or Romans. They took part in

The irrigated and intensively cultivated huerta of Valencia draws its water supply from the mountain rivers. The utmost use is made of this rich, alluvial soil. (N. J. G. Pounds.)



steep headlands, between which the sea runs up the valleys to form the rias, such as those near Bilbao, San Sebastian, and Irún. The defiles of the Basque province lead down to the coast where the little river Bidassoa constitutes the boundary with France.

The Basque language is still spoken to a small extent in this hilly region, but is today rapidly yielding place to Spanish. It was once widespread over Navarre (*Sp.*: Navarra) and the Pyrenees and formerly stretched far into the French province of Gascony, but the number of those who know any Basque is diminishing. The Basque province is now distinguished as much by its industrialization and its vigorous, commercial outlook as by its Basque speech. Iron ore occurs in the hills of the coastal range, but reserves are small, and not much over a million tons is exported annually to European countries. There is an iron-smelting industry at Bilbao (318,000), which lies at the head of the long narrow ria of the river Nervion. San Sebastian (141,000) is a resort on the beautiful coast to the east, and Santander (123,000), a small industrial town, lies on a ria to the west.

The Cantabrian Mountains, which are west of Santander, resemble the Pyrenees. They have a core of ancient crystalline rocks, which come to the surface toward the west and give rise to rugged alpine scenery. They are, however, lower than the Pyrenees. The highest peaks are little more than 8,500 feet, but the range as a whole is continuous and unbroken and offers a serious obstacle to human movement. The greatest heights are attained toward the east in a group of peaks known as the Penas de Europa. In about 150 miles only one railroad, that between the Meseta and the town of Oviedo, crosses it at a height of over 4,200 feet. Toward the west the Cantabrian Mountains curve toward the southwest and then the south. Here branches from the Cantabrian range enclose the level, fertile basin of the river Sil, known as "El Bierzo." On the east, mountains cut it off from the Meseta, on the west and south from the mild and humid region of Galicia. The Sil Basin is transitional from the maritime region of northwestern Spain to the Meseta.

Between the Cantabrian Mountains and the sea is a narrow coastal range, but the rocks which compose it are softer, soils richer, and agriculture of greater importance. In this depression also is found the only significant coalfield of Spain, that of Oviedo. Oviedo (133,000) handles the coal and iron ore of the region and has developed metallurgical industries.

Rainfall is heavy in the higher mountains but quickly diminishes on the edges of the Ebro Basin and the Meseta. At lower levels the climate is mild, but as in all areas of strong relief, conditions of temperature, cloudiness, and humidity differ sharply within quite short distances. Much of the region is forested and lies within the limits of northwest European coniferous and broad-leaved trees. Oak and beech grow on the lower ground, and northern conifers and birch on the higher. Southern trees, however, begin to appear and the evergreen oak and Spanish chestnut are found.

Galicia. In the extreme northwest is a plateau formed in old, hard rocks like the Cantabrians. It slopes toward the sea, and its general height increases from less than 2,000 feet in the north to nearly 4,000 feet near the Portuguese border. It has been deeply eroded by rivers and now presents the aspect of smooth, rounded hills separated by broad valleys, which reach down to the coast and terminate in long, branching rias. The rias of the Galician coast are very much larger and more beautiful than those of the Basque country, reaching 20 miles inland and providing deep and sheltered anchorages. Fishing ports have grown up along their shores but no large cities except Vigo (154,300). Their rugged hinterland prevents their development as significant ports for the Spanish peninsula.

Galicia has a mild, moist climate. Rainfall is heavy, a great deal more than 40 inches in most parts, and cloud considerable, but frost and snow are rare except on higher ground. Vegetation is rich and of the kind which in France is known as *bocage*. The landscape is one of small fields and thick hedges, of meadow, grassland, small patches of woodland, and small and scattered villages. Towns are few and small, but Santiago,

Barcelona are many small towns, some with textile industries, which formerly used water power from the surrounding hills.

The people of Catalonia are distinct from those of the rest of Spain. They speak the Catalan language, which resembles the now extinct *langue d'oc* of southern France. They are a vigorous and enterprising people; they have engaged in commerce since the Middle Ages and have never experienced the religious fanaticism and intolerance of the people of the Meseta, occupied for many centuries in their struggle with the Moors. Nor are they favorable to Spanish or Castilian nationalism, tending rather to dislike the Castilian and to distrust everything that emanates from Madrid. Local autonomy is their object, and this they attained under the short-lived Spanish republic, only to lose it with the victory of Franco.

South of the Ebro Valley the mountains of southern and eastern Spain come close to the coast of the Mediterranean, and spurs from the mountain chains form projecting headlands, between which are a number of separate coastal plains. Many of these are made up of the alluvium laid down by the short rivers and are fertile, needing only a regular supply of water to become highly productive. Rainfall, however, is low, almost everywhere less than 20 inches and in places under 15 inches a year. This is quite inadequate for the intensive cultivation that the quality of the soil warrants, and agriculture is heavily dependent upon irrigation. Water is stored in innumerable reservoirs in the mountains and released to water the small coastal plains. These are flat and furrowed with a network of irrigation channels. The use of the water is strictly controlled, and it is rationed between the cultivators. The agricultural population is dense, and holdings small. The *huertas*, literally "gardens," are intensively cultivated, and two or three crops are taken from them in each year. The *vegas* are larger and less well irrigated and cultivated. Rice, maize, wheat, vegetables, and fruit are grown. The olive and grapevine are common, oranges are important, and the banana and date palms here make their only real appearance in Europe. The plains of the Mediterranean shore are in effect oases, shut in on the

landward side by a waste of *matorral* scrub and steppe.

Between Gibraltar and Cape de Gata the areas of irrigated lowland are small and separated by stretches of rugged coast where the mountains drop steeply to the sea. The plains of Malaga, Velez Malaga, Motril, and Almeria are the largest, the plain of Malaga (307,000) being a plain of almost 20 miles from west to east and 10 from north to south. North of Cape de Gata the plains are larger. The lowlands of Cuevas de Vera, Cartagena (128,000), Murcia (258,000), Alicante (126,000), Valencia (503,000), and Castellon de la Plana (65,000) are each extensive. Along the coast are lagoons, swamps, and sand dunes. North of Alicante the coastal ranges reach out to the rocky Cape Nao, which separates the plain of Murcia from that of Valencia. The latter is a semicircular sweep of plain, at most 15 to 20 miles wide. Along the coast are also lagoons and sand dunes, and behind them the rich *huertas* reach up to the edge of the mountains. Valencia lies as nearly as possible in the middle of this plain, its market and business center.

The antipathy which exists between the Catalan and the Castilian exists also between the inhabitants of Valencia and of other "gardens" of the Mediterranean coast and those of the Meseta. But these areas are individually too small to resist domination from the interior. Valencian home rule is a dream that is yet far from realization.

Plain of Andalusia. On the south the Meseta drops steeply to the plain of the Guadalquivir. South of this again a range of high mountains, the Betic Mountains, named from Baetica, the Roman name for this region, interposes between the plain and the Mediterranean Sea. All the problems of southern Spain are accentuated here. Moorish occupation was longer, and its effects have gone deeper. The climate, hot with a small winter rainfall, necessitates more capital, not less, in an area where people are even poorer and more overcrowded. A hopelessness has settled on the south of Spain, as formerly on the south of Italy, relieved only by the prospect of a revolution at some future date.

reflection of these conditions. In the moist and mountainous region of the north the pattern of settlement is in the main a scattered one. The farmsteads stand among their fields; there are hamlets but few large villages. In the more arid regions of both the Ebro Valley and the Meseta the pattern becomes one of large and widely spaced nucleated villages, amounting in size sometimes to small towns. The nucleation may be due in certain instances to the nature of the water supply, but it appears that the predominant reason lay in the need for security and defense against the Moors during the period of the Christian reconquest. The standard of housing is low. The villages of the Meseta are frequently made up of low, single-floored mud or stone dwellings, with a low-pitched roof of tile or thatch. In parts of Castile are villages of troglodytic dwellings carved in the hillsides. Conditions are better in the north and also in the irrigated lands of the southeast. An interesting feature is the change in the pitch of the roof from the steep roofs of the wet north to the almost or quite flat roofs of the dry south-east.

The most striking characteristic of the rural population of the whole of the Iberian peninsula is its poverty. Conditions are worst over the southern part of the Meseta and in Andalusia, but indications of rural well-being are hard to find in any part of the area. To some extent this is due to recurrent civil war; in part it is due to the semifeudal conditions that have continued to prevail through modern times. The southern half of Spain is predominantly a region of large estates, often owned by absentee landlords and cultivated by a poor and landless peasantry. The breakup of the large estates has been heralded as a solution to the agrarian problem, and efforts were made in this direction during the 1930s. The problem goes deeper. To distribute the land among the cultivators is not to remedy their ignorance and their lack of equipment and capital. Nor will redistribution alone bring about a change in the demographic pattern, in which large villages and agricultural towns occur in areas least suited to support them. In the north the peasants usually cultivate their own fields, but these are often too

small. In Galicia, notorious for the minute size of its agricultural holdings and the relative density of its agricultural population, there is an acute pressure of population on the limited agricultural resources, with the result that land which should have been left under grass is plowed and sown to crops.

Only a small proportion of the total population lives in towns. Two cities, Madrid and Barcelona, have a population of over 1 million, and of smaller cities, only Valencia has over half a million. Many towns well known in the history and literature of Europe are very small. Merida and Toledo have each less than 50,000 inhabitants, and Segovia and Avila less than 30,000. The distribution of the larger towns accords with that of the population as a whole. With the exception of Madrid, Zaragoza, and Cordoba, they are coastal or near the coast.

Though agriculture is by far the most important occupation in both Spain and Portugal, only three crops, the grape, the olive, and citrus fruit enter largely into the export trade of the two countries. For the rest, agriculture is largely on little more than a subsistence basis. Irrigation has long been practiced in the lowlands which border the Mediterranean Sea. Irrigation projects are now being developed on the Meseta, especially in the Guadiana Valley and elsewhere wherever the rivers are not too deeply incised in the plateau for their water to be taken and used in the fields. Crops are grown that yield the greatest volume of food under existing conditions of soil and climate and at the present stage of technological development. Manures are very little used, and resort is commonly had to bare fallow to restore the fertility of the soil. Up to a third of the total agricultural land may at any one time be under bare fallow. Over half would be under cereal crops, chiefly wheat, which is grown in all parts except the humid north and northwest. Barley is a crop of the dry south; rye of the damp northwest. Corn is grown in the wetter parts of the north and west, and rice is planted in the irrigated fields of the Ebro Valley and the southeast. The yields per acre of all these crops are low—very far below the average for western European coun-

The Balearic Islands are a continuation eastward from Cape Nao of the Betic Mountains. The group consists of three islands, Minorca, Majorca, and Ibiza, together with a few rocky islets. All are hilly, with a mild climate and sufficient rainfall for agriculture. The population lives in small villages and is chiefly engaged in agriculture. The Balearic Islands display a characteristic of Mediterranean islands—the absence of coastal settlement due to the danger of pirates in earlier times.

At the opposite extremity of the Betic chain is the Rock of Gibraltar, occupied by Great Britain since 1704 because of its command of the Straits. Other places, such as Tangier and Tarifa, are even better suited in this respect but are less easily defended. The Rock contains a considerable British garrison and an even larger British and Spanish civilian population, whose primary purpose it is to minister to the wants of the military and the tourist.

Pyrenees and Catalanian Mountains. Northern Spain is made up of a chain of mountains which rise from the northern limits of the Meseta. They lie far enough north to be exposed to westerly winds at all seasons of the year. It is in general a region of cool winters and warm summers, with rain at all times. The natural vegetation is deciduous woodland. Man has made clearings and cultivated temperate crops.

These hills were never really conquered by the Moors. Instead they formed a bastion from which the Christian peoples moved southward to reconquer the peninsula. The north is a region of peasant proprietors, more progressive and independent than the natives of other parts of Spain except Catalonia. They have developed manufacturing industries in Asturias and the Basque country. Like the Catalans, they show no love for the Castilian and have many times demanded some degree of home rule. They were promised the satisfaction of their wishes by the republican government (1931 to 1936), but the Civil War came before they could be fulfilled.

The Pyrenees of Spain repeat the features found on the French side of the range. A core

of crystalline rocks forms the central backbone and gives rise to the greatest heights and most rugged scenery. The French frontier follows in general the watershed of the Pyrenees, but the Pic d'Aneto, the highest peak, lies wholly in Spain. The Pyrenees are bordered by limestone rocks of younger geological age. These have been eroded into a series of east-to-west ridges, between which flow the Pyrenean rivers. Between these lower hills and the main Pyrenean range is a depression, not wholly continuous throughout the length of the range, in which agriculture is practiced and a few small towns, such as Pamplona and Jaca, have grown up. A similar line of small market towns lies along the southern edge of the limestone hills at their junction with the Ebro Plain. The slope of the Pyrenees on the Spanish side of the range is, on the whole, a great deal more gentle than on the French, but the broad features of the human geography are similar on each side of the range.

On the Spanish, as on the French side, the Pyrenean ridges present a barrier to movement, and the transverse valleys are narrow, difficult, and easily defended. The upper valleys of the Pyrenean rivers not only were held successfully against the Moorish invaders of Spain but have since retained a strong feeling of local independence. The nominally independent republic of Andorra still occupies the upper valley of the Segre River, a small, remote area of only 191 square miles and a population of about 9,000. Toward the western end of the Pyrenees the Basque province of Navarre, with its capital of Pamplona, was for a long while a Pyrenean rather than a Spanish state and retains today a powerful urge toward local independence.

West of the pass of Roncevaux the crystalline core of the Pyrenean range disappears from view, and for a distance of considerably over 100 miles the range is made up of limestone ridges. These are nowhere high, and almost the whole area lies below 4,000 feet, but it has been dissected by the many short rivers and is rugged and forested. This is the Basque country. The most northerly of the limestone ridges lies close to the coast; its spurs reach out into the sea to form

veloped to only a small extent. There is a small chemical industry, subsidiary to the metallurgical, and attempts have been made in recent years to develop further the manufacture of synthetic fertilizers, which are so much needed by Spanish agriculture.

Transportation facilities are also relatively underdeveloped, and the network of roads and railways is thinner than in any other country of western Europe. The chief characteristic of both roads and railways is their concentration on Madrid. Cross-country travel is difficult in most parts of Spain. This gravely restricts the development of manufacturing industries, owing to the obstacles in the way of the internal distribution of the produce, and serves at the same time to increase the dependence of the provinces on Madrid.

The foreign trade of these countries is small, and the volume, per capita, of both exports and imports is among the lowest in western Europe. The export trade of Spain is dominated by certain specialized agricultural products, of which fruit,

both fresh and preserved, is by far the most important. These specialties are followed, in order of value, by wines and vegetables. Minerals, especially iron ore, are among the more important exports. The imports consist mainly of manufactured goods, coal, petroleum, and the raw materials, such as cotton, used in the manufacturing industries of the peninsula.

Spain thus demonstrates problems that are common to the whole of southern Europe—poverty and overpopulation in regions that were once bright with promise; lack of capital and initiative in lands that were once in the forefront of human progress. The initiative has passed to northwestern Europe, while civil war and unrest, which commonly accompany low living standards, lower yet further the level of human welfare. Within the last 30 years Spain has been the scene of one of the most bloodthirsty and destructive of all civil wars.

The last of the enfeebled Bourbons left the throne of Spain in 1931. The republican government which succeeded was faced with heavy economic problems. Its slow progress outraged the extremists, while conservatives and nationalists opposed it on all counts. It fell between the extremes of the political right and left, and was overwhelmed between 1936 and 1939 by the rebellion of Franco, supported by the manpower of Italy and the arms of Germany. It did not, however, prevent the population from increasing by 2 millions between 1930 and 1960.

Spain fits ill into the European community of nations. The fanaticism and conservatism of the Castilian, his pride and obstinacy, his clinging to the outworn modes of medievalism, which Cervantes ridiculed but could not destroy, have combined to keep Spain aloof from other nations. Spain is proud and poor, and her poverty is in some degree the price of her pride.

Portugal

Portugal is but the western fringe of the Spanish peninsula. For the greater part it lies off the Meseta and at a lower altitude, though the Sierras

TABLE 31-1. Chief Elements in Spain's Foreign Trade, 1962 (In Millions of Pesetas)

Item	Exports	Imports
Food	11,589.7	19,737.3
Beverages and tobacco	1,975.2	2,067.8
Crude materials, inedible	16,379.5	3,678.9
Mineral fuels	14,779.7	2,679.0
Animal and vegetable oils and fats	4,196.0	2,694.1
Chemicals	8,127.6	2,178.4
Manufactured goods	10,597.8	4,974.0
Machinery and transport equipment	24,245.1	3,211.4
Miscellaneous manufactured articles	2,273.0	2,885.0
Miscellaneous transactions and commodities	2.5	61.4
Total	94,166.2	44,167.2

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1963.

despite its situation in the extreme northwest of Spain and its difficult communications with the rest of Europe, became during the Middle Ages an important center of pilgrimage, where the shrine of Saint James of Compostella attracted the faithful from all parts of Christian Europe.

THE DEVELOPMENT OF MODERN SPAIN

Since 1640 the Iberian peninsula has been divided into two political units, Spain and Portugal. The history of the Middle Ages is that of the gradual expulsion of the Moors by the Christian states and of the unification of the latter. The states of the Meseta, Leon and Castile, were first joined: to these was added the kingdom of Aragon in the later years of the fifteenth century. In 1492, Granada, the last Moorish stronghold in Spain, was captured by the Spaniards, and with the exception of Portugal, the whole peninsula was united under a single rule. Portugal was itself occupied from 1580 to 1640 by the forces of Spain.

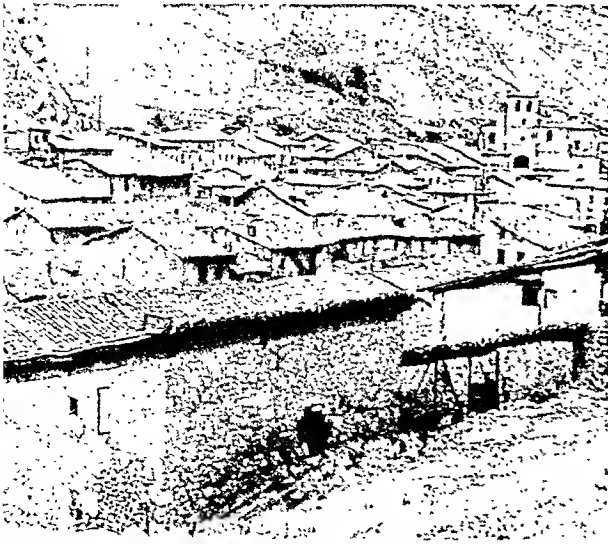
This political unification has failed to bring with it any strong sense of nationalism. Feeling in Spain is local rather than national, and in recent years there have been a number of movements to establish some measure of local autonomy in Catalonia, the Basque territory, Valencia, and Andalusia. There is little reason, other than the accident of history and its long alliance with Great Britain, why Portugal should now be independent and Catalonia a part of Spain rather than

the reverse. The peninsula has a common history, and the settlement pattern and agricultural and industrial development of Spain and Portugal are broadly similar.

The population of Spain is at present about 30,500,000, but its density of about 155 to the square mile is one of the lowest in Europe. Portugal, by comparison, has about 9,196,000 inhabitants and 260 to the square mile. This does not, however, indicate any great difference between the two countries; the population of Portugal accords closely with the density found in the coastal regions of Spain.

The areas of dense population are peripheral, because the best conditions for agriculture are found around the margin of the land. Almost the whole of the Meseta and its bounding ranges has a density of less than 100, and at least half of it has less than 50, to the square mile. The capital of Spain, Madrid, in order to be geographically central, is in the midst of the least-populated area and far from all areas of dense population. This peripheral distribution of population serves further to deepen the intensity of local patriotism in the regions which are geographically marginal.

The population of both countries is predominantly rural and agricultural. Forty-eight per cent of the employed population of Spain and 42 per cent of that of Portugal are engaged in farming activities. Geographical conditions, and with them the practice and methods of agriculture, differ widely over the peninsula. The style of dwelling and the distribution of settlements are in part a



On the Meseta much of the population is gathered into large, crowded villages without trees or shade, scorched by the blistering summer heat and frozen in winter. (N. J. G. Pounds.)

tributaries are bare ridges of granitic and other crystalline rocks. These ridges trend generally from northeast to southwest. On the south of this plateau region are the western continuations of the central Sierras of the Spanish Meseta, short, narrow ranges which demonstrate the same northeast-to-southwest trend. The river Tagus (*Port: Tejo*) flows close to the southern edge of these ranges. South of the Tagus the plateau of Extremadura diminishes in height as it continues into Portugal, until it merges into the Portuguese lowlands. In the extreme south, the hills of Algarve carry the line of the Sierra Morena out to the sea.

The climate changes gradually from north to south. On the Spanish boundary in the north rainfall is heavy and the climate mild. The rainfall diminishes southward, sunshine becomes greater, temperatures warmer, the rainy season more restricted, and the summers longer and drier. The vegetation changes with the climate. In southern Galicia the northern trees begin to disappear. Spanish chestnut and evergreen oak take over and pass southward into woods of cork oak or *matorral* scrub. The grapevine is cultivated in the Minho Valley and becomes more important in the Douro Valley, where it is the chief cultivated crop.

PORTUGUESE LOWLANDS

These are separated from the plateau of northern and eastern Portugal by a fault line, along the east of which the older rocks rise steeply. The plain is composed of young, soft rocks, and much of it is under cultivation. The plain begins to the north of the Douro and widens as it progresses southward. Near Coimbra it is some 30 miles wide. South of this point the plain narrows as a range of low limestone hills continues the direction of the Sierra da Estrella and forms the Lisbon peninsula. The coastal plain has a straight, harborless coast fringed with sand dunes, on which conifers have been planted. Shallow lagoons have been formed by the drifting sand. But behind this sandy area the land is intensively cultivated with cereals and fruit. Oporto (*Port: Porto*, 303,000) on the Douro estuary, is the focus of the Portuguese wine trade; Coimbra, a small town on the inner edge of

the coastal plain, is a former capital of Portugal and an artistic and cultural center.

The Tagus widens into the harbor of Lisbon, which is one of Portugal's most valuable natural assets, a waterway almost 20 miles from north to south and 4 to 8 miles wide. Its entrance is narrow, but its waters are deep enough for any modern craft. The town of Lisbon lies at the entrance to the harbor, on the southeastern extremity of the Lisbon peninsula. Lisbon is a settlement of ancient origin, but it was not until the twelfth century, with the expulsion of the Moors, that it became the capital of Portugal. It was important in the Portuguese maritime enterprise of the sixteenth century and had grown to a considerable size before it was destroyed by an earthquake in 1755. Most of the present city has been built since this date. Lisbon now handles most of the trade of Portugal; it is a commercial and business city, and has a number of light industries.

South of the Tagus the coastal plain reaches to the hills of Algarve, broken by many low hills, built of dry, infertile limestone. The lower land, sometimes spread with fertile alluvium, is well cultivated, but the hills are too dry for agriculture and are covered with either forests of cork oak or *matorral*. The Sado, which drains much of this plain, has a large estuary comparable in many ways to that of the Tagus but has always been excelled in importance by that of Lisbon. It is of little importance, except for fishing. The town of Setubal at the entrance is a center of the Portuguese sardine fishery.

Portugal is predominantly an agricultural country. Its resources are, in proportion to its size, greater than those of Spain, and it supports a denser population. Agricultural standards are in general not noticeably better than those of Spain, but Portugal has advantages denied to her neighbor. Proximity to the coast and greater ease of communications allow her to export more easily, and this has in turn encouraged the production of agricultural specialties, of which port wine is the most important.

The population of Portugal in 1961 was estimated to be 9,196,000 and is increasing steadily.



Today one still meets flocks of sheep everywhere in Spain, like those with which Don Quixote lilled, though they no longer make seasonal migrations between the north and the south of the country. (N. J. G. Pounds.)

tries. Olive groves cover large areas in Andalusia, the southern Meseta, and the Ebro Valley. They afford the most important source of vegetable oils, the only fat consumed by the greater part of the population, and provide an important export. Grapevines are more widely distributed. Few parts of the peninsula produce no wine, but the most intensive production is in the Duero Valley of Portugal and along the coast of eastern Spain.

Spain was formerly famous for its livestock husbandry. From the time of the Moorish retreat until the beginning of the last century large flocks of sheep made their twice-yearly journey from the winter grazings in Andalusia to their summer homes in the northern Meseta and back again. The organization of sheepowners, the *mesta*, was a powerful force in Spanish politics, and readers of Cervantes' *Don Quixote* will remember that the knight mistook the flocks of transhumant sheep for the armies of the infidel. Wool was one of the most valuable products of Spain, and the merino sheep was originally Spanish. Sheep are now less important but remain the most numerous branch of livestock, particularly on the poor grasslands of the Meseta. Cattle are confined almost wholly to the damp north, where grass grows throughout the year.

By contrast, manufacturing industry is a recent development, is highly localized, and employs only a small proportion of the total population. Spain itself is far from being without resources for modern industry. In addition to the deposits, important but not large, of nonferrous metals, there are deposits of iron ore in the Basque country and of coal in Asturias. Water-power resources

in the Cantabrian Mountains and the Pyrenees are considerable and have been developed to a small extent, but elsewhere in the peninsula the rainfall is too slight and too irregular for power resources to be important. The textile industry of Spain is, like that of most western European countries, the oldest and still one of the most important of modern industries. It is no longer widely distributed, however, and about 90 per cent of the productive capacity of Spain is located in Catalonia. Factories are small and located either in the suburbs of Barcelona or in the small towns of its immediate hinterland. There is no geographical distinction between cotton- and wool-producing centers. Imported materials, such as raw cotton, are brought in through Barcelona, and the region depends in general upon hydroelectric power.

The present regime is attempting not only to expand manufacturing industry, but also to distribute it more evenly over the country. Valladolid has been made an important industrial center in recent years, and plans are under way to develop manufactures also in the Burgos area.

The metallurgical industry of Spain is more recent in origin, though this, too, has roots in the medieval ironworking for which Spain was famous. The modern smelting industry is located primarily in the Basque country, particularly in and around the town of Bilbao (317,600), where the ore is mined, but there are lesser centers at Barcelona and in and near Gijon (126,600) in Asturias. The total steel production in 1962 was about 2,196,000 tons a year. The output of iron ore has diminished recently and in 1961 was only 2,889,000 tons of metal content. Other industries are de-

CANARY ISLANDS (Sp: *Islas Canarias*)

The Canary Islands, which constitute part of Spain, lie even closer to the coast of Africa, and the nearest is only 70 miles from the mainland. Like the other groups, the Canary Islands are volcanic in origin and rugged in relief. There is little flatland, and much of the group is semiarid and scrub-covered. Tenerife, consisting of the crater of a still-active volcano, is the largest island and has the biggest population. The islands are famous for their fruit and vegetable production, much of which is grown on the terraced hillsides of the volcanoes. Bananas, tomatoes, citrus fruits, and wine are exported from Santa Cruz de Tenerife (134,620) and Las Palmas (193,862), the chief ports and largest towns of the group.

Yet farther south is the Cape Verde group of

islands, lying 320 miles off the desert coast of this part of Africa. The islands are Portuguese, and are mountainous and of little commercial significance.

Portugal is the oldest European imperial power. It is also the only one, apart from the United Kingdom, to retain extensive colonial territories. Most of these are in Africa, where Portuguese rule is very far from going unchallenged. In 1961 Portugal lost her enclaves in India, but she retains part of Timor in the East Indies and Macau on the coast of China. In the past, the possession of these colonial territories and the control of their trade has been of considerable economic value to Portugal. Today, internal disturbances and the rising cost of administering unwilling subjects is threatening to turn these assets into liabilities.

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of Spain are continued across it toward the sea. Nowhere is the country much over 100 miles from west to east, but it is over 300 miles from north to south. It thus lies open to the sea, and the sea has been even more important in Portuguese history than in that of England. Rain and cooling winds come in from the Atlantic. Portugal's maritime position has brought it the friendship and patronage of Great Britain, and the nation is proud to call itself Britain's oldest ally. Spanish nationalism has conceived of the complete union of the whole peninsula. Catalonia has been absorbed into Spain, but Portugal, except for the period 1580 to 1640, has maintained her independence. Franco, in the first flush of his victory, spoke of again uniting the peninsula, but today this is no longer mentioned.

Portuguese independence owes much to Britain's friendship and to British sea power. This alliance was based upon a fourteenth-century marriage and

confirmed by the British liking for port wine. Its chief basis today lies in the port of Lisbon (*Port: Lisboa*, 802,000),¹ the best harbor on the west coast of Europe and, in the hands of an enemy of Great Britain, a great threat to her seaborne communications. Great Britain, for example, defended the approaches to the harbor of Lisbon during the Napoleonic Wars and held the port as a base from which to guard her maritime communications.

Northern Portugal is a plateau made up of hard rocks similar to those which compose the Meseta. It is less dissected than Galicia but more so than the plateau of Castile, which adjoins it to the east. Between the valleys, many of them deep and narrow, of the Douro (*Sp: Duero*) and its

¹ The population in 1960 is given for Portuguese cities of over 50,000 (of which there are only two).

Northern Portugal is a rugged granite country of great beauty and little wealth. The boundary between Spain and Portugal runs through this tangled region. (*N. J. G. Pounds.*)



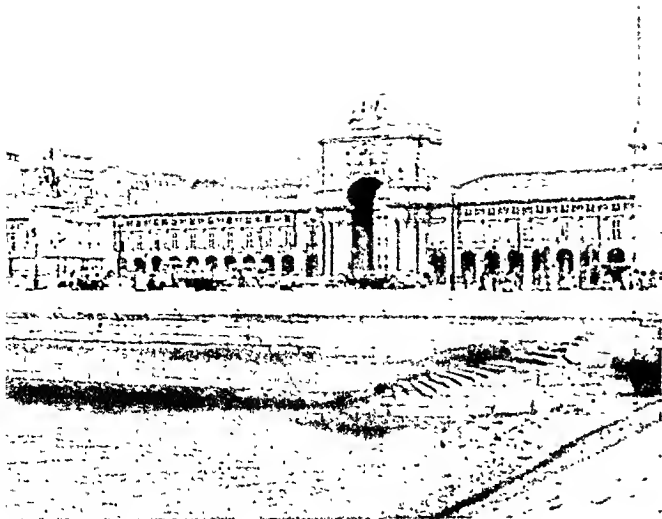
Italy

32

Italy is an almost wholly Mediterranean country. It is a peninsula reaching nearly 600 miles southeastward from the continent of Europe. On the north it is bounded by the high and snow-capped Alps. Much of Italy is hilly or mountainous. The Alps of the north and northeast are continued as the Apennines into the peninsula, where they form a sort of backbone and extend to the extreme south of Italy. The areas of coastal plain are small, and despite modern reclamation, parts were recently malarial. Off the southern extremity of Italy is the island of Sicily, and 150 miles offshore to the west of the peninsula is Sardinia. In the north is the only large area of low-lying plain in the whole country, the valley of the Po.

In the Po Valley summers are hot and rice grows well, while in winter the rivers are often locked in frost. The Italian peninsula is cut off by the Apennines from the Po Valley. The cold of the northern winter sometimes reaches Rome, and snow flurries may on rare occasions be seen among the orange groves of Naples, but southern Italy in general is warm and sunny.

The northern plain is today the most densely peopled, the most highly developed industrially, and in many respects the most progressive part of Italy. The central parts of this peninsula, from Rome or even Naples north-



In 1755 Lisbon was destroyed by an earthquake, and was later rebuilt by the statesman, Pombal, as a well-planned and elegant city. The Praça do Comercio faces the superb Lisbon harbor, and is one of the finest squares in Europe. (N. J. G. Pounds.)

Attempts are being made to extend cultivation in areas hitherto uncultivated and to build up manufacturing industries. At present a steel industry is being developed. In relation to her population, Portugal has a considerable foreign trade. In value the wine export is the most important, followed by cork, salted and canned fish, and minerals. The export of pyrites and wolfram brings in a small revenue. The cotton textile industry has grown in

recent years to be sufficiently large for cloth to be among the exports.

AZORES (Port: Acores)

The Azores Islands have been Portuguese since the sixteenth century, and are now regarded as integral parts of the republic. They are generally rugged, but soils are fertile and productive. Ponta Delgada on the island of São Miguel is the chief port and largest settlement and was once of importance for provisioning and watering ships. It still exports small quantities of fruit. With the development of airplane transport the Azores have begun to assume a very considerable importance in transatlantic communications because they offer the only possible landing field between the Bermuda group and the coast of Europe.

MADEIRA

Madeira, also Portuguese, lies closer to the coast of Africa and is less than 600 miles southwest of Lisbon. It is a rugged volcanic island. Soils are fertile, but owing to the strong relief, only small areas around the coast are under cultivation. The population is less than a quarter million. Though lying close to the desert coast of Africa, the island is far from barren, and much is heavily forested. Irrigation has to be practiced for crop cultivation, but fruit is important, and the wine exported from the island is widely known. Funchal, the capital, is the largest town and port and occupies almost the only area of low flatland.

TABLE 31-2. Chief Elements in Portugal's Foreign Trade, 1962 (In Millions of Escudos)

Item	Exports	Imports
Food	1,907.77	1,825.59
Beverages and tobacco	820.91	196.39
Crude materials, inedible	1,421.13	3,045.72
Mineral fuels	162.46	1,790.84
Animal and vegetable oils and fats	360.27	100.49
Chemicals	719.34	1,590.33
Manufactured goods	4,354.50	2,807.90
Machinery and transport equipment	313.18	4,829.95
Miscellaneous manufactured articles	441.04	438.54
Miscellaneous transactions and commodities	131.20	176.32
Total	10,631.80	16,829.06

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1963.



FIGURE 32-1. Italy: landform regions.

PORTUGAL

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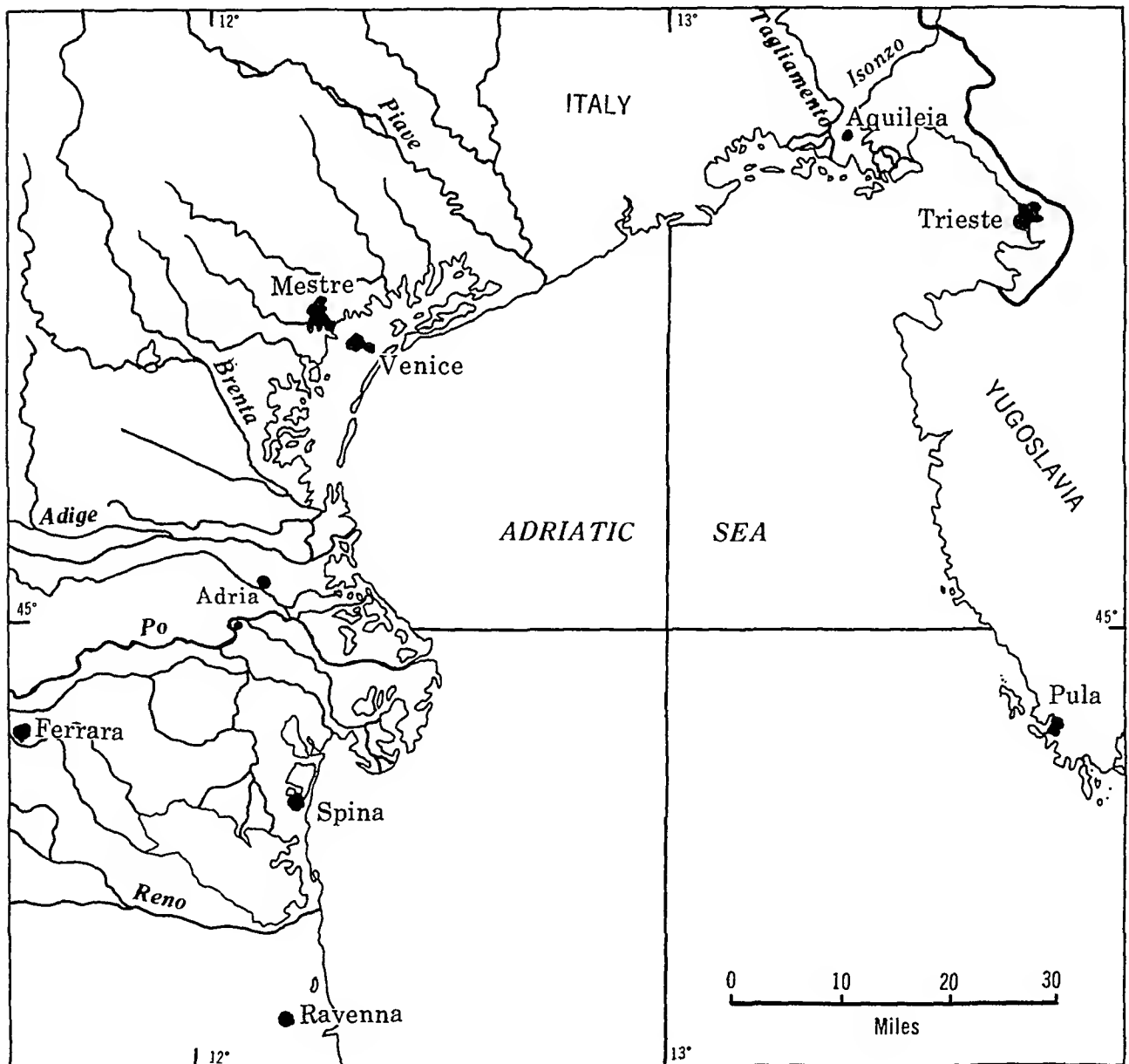
The south-facing Alpine slopes have a bright and mild climate. Southern fruits, with the exception of the olive, grow well, and the vegetation is made up of the dry, aromatic plants of the south, but the rainfall is not concentrated in the winter months as it is in the true Mediterranean area, and winters are colder. The Italian Alps are neither highly industrialized nor urbanized, but throughout the length of their valleys are hydroelectric stations which supply power not only to metal-

lurgical and chemical industries within the mountains but also to the industrial towns of the plain.

THE LOMBARDY PLAIN

The plain of the river Po extends almost 250 miles from the Alps in the west to the Adriatic Sea. Its width varies from 50 miles near Turin to about 130 miles on the coast. An arm of this lowland plain, about 30 miles wide, extends north-

FIGURE 32-2. Head of the Adriatic Sea and the delta of the river Po.



ward to Florence, were the chief center of the cultural developments of the Italian Renaissance of the fifteenth and sixteenth centuries, when the cities came to be graced by cathedrals, galleries, and palaces. In contrast, the southernmost part of Italy and the island of Sicily are poor and backward. Like southern Spain, these areas lie on the frontier of Europe. They have been exposed to attack and to some extent invaded and settled by peoples from North Africa.

Italian unity was not achieved until the middle years of the nineteenth century. From the end of the period of the Roman Empire until 1860, the peninsula was divided into a number of small political units, not unlike those into which Germany had been divided. Those of the north were closely linked with Austria and had been fought over by the armies of Germany. Those of the south had been preyed upon by raiders from over the sea and settled by groups of invaders, varying from Arabs to Norsemen. Central Italy was the least disturbed. This region could not easily focus the aspirations of the Italians to become a single nation, politically united, because it was itself dominated by the papacy. Here from the closing years of the Roman Empire onward, the popes grew to wealth and temporal importance. Until 1860 they ruled a large area in central Italy. The pope continued to control Rome until 1870, and in 1928 became again the ruler of a small state, the Vatican City. In 1860 the greater part of modern Italy was united by a popular movement associated with the names of Garibaldi and Cavour. In the north, the province of Venice (*It: Venezia*) was not taken from Austria until 1866, and Rome was not occupied and made the capital of a united Italy until 1870. *Italia Irredenta*, consisting of the South Tyrol and the extreme northeast of Italy, remained outside the new state, and these territories were the reward for Italy's entry into the First World War on the side of the Allies.

In 1919 the Italian frontier was extended to the Brenner Pass in the north and the Julian Karst in the northeast, but this fell short of the ambitions of Italy, which had hoped to gain Fiume and the eastern shore of the Adriatic, where many Italians had settled (see page 365). In 1919 a band of

Italian nationalists seized the free city of Fiume, and a few years later it was incorporated into Italy.

As a result of the Second World War, Italy has lost possession of Fiume, now the Yugoslav city of Rijeka, of the Istrian peninsula, and of the small enclave of Zara (*S-C: Zadar*). Italy has retained the South Tyrol, however, despite its predominantly German-speaking population.

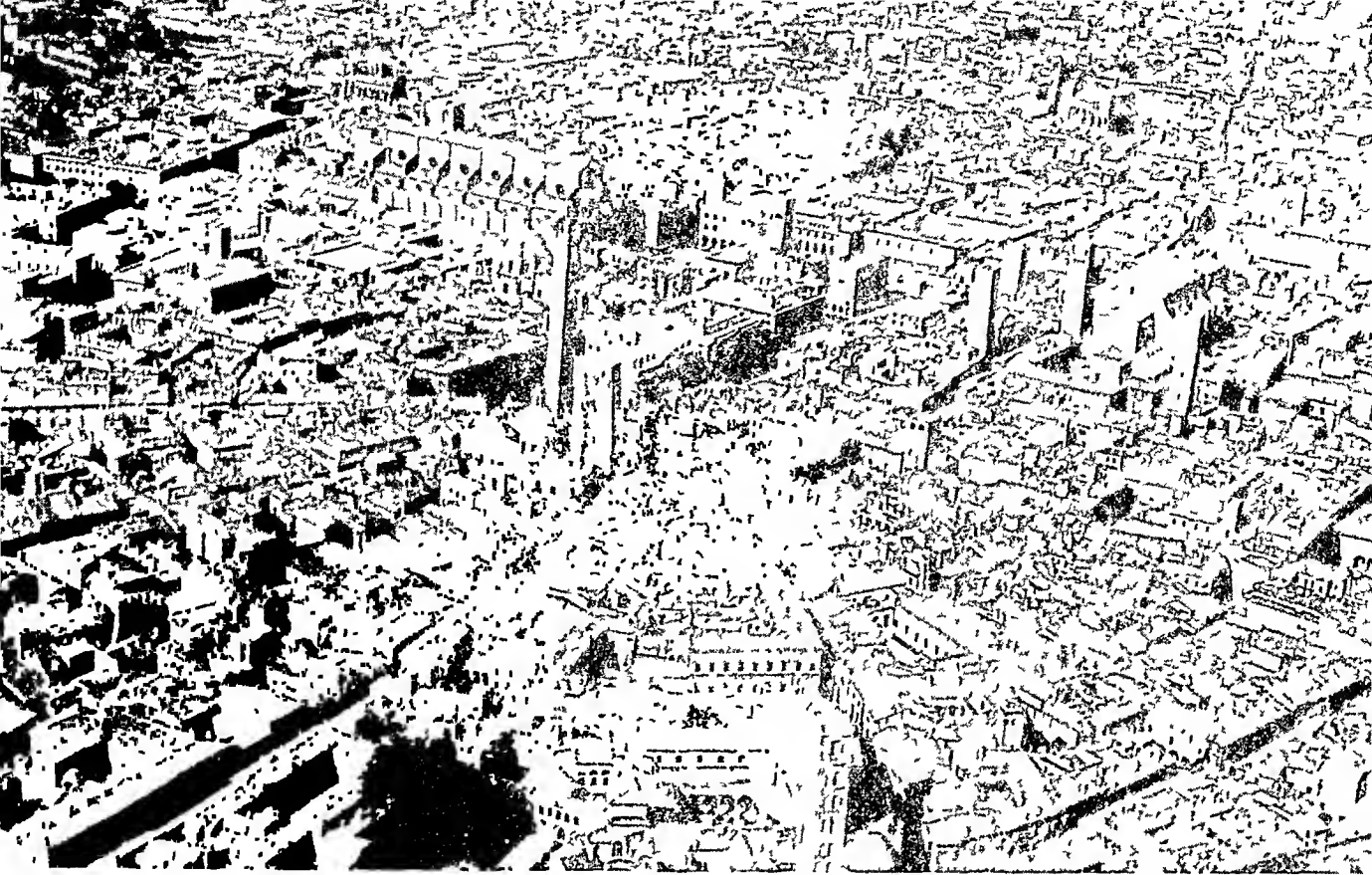
THE ALPS

The Alps rise steeply from the Lombardy Plain. Their unbroken line runs around the horizon of the plain, to all appearances an impenetrable barrier, yet these "splendid traitors," as Napoleon called them, have let in more invaders than they have ever served to deter. The Italian Alps are divided into a number of compact mountain masses by valleys and passes which afford easy ingress.

South of the latitude of Turin (*It: Torino*) the Maritime and Cottian Alps constitute a sharp crest, difficult to cross though generally under 9,000 feet in height, which continues into the Ligurian Alps and Apennines. The region is a sparsely populated area of crystalline rock, with no through railway routes and few roads. But rivers which water the Lombardy Plain flow from them and in their swift descent generate power for the factories of Turin.

The valley of the Dora Riparia, at the head of which are the Mont Cenis Pass and Tunnel, separates the Cottian from the Graian Alps. The valley is wide, and its flat floor is well cultivated. The small town of Susa, the most important in the valley, lies at the meeting place of the routes over the Mont Cenis Pass and over a number of lesser passes.

Between the Dora Riparia and the Dora Baltea, another tributary of the Po, are the Graian Alps, a compact area which contains the beautiful Gran Paradiso Massif, more rugged because more intensely glaciated than the mountains farther south. The Dora Baltea is also broad and well cultivated between its steep, forested sides and rises upstream to the Little and Great Saint Bernard Passes.



Bologna on the southern edge of the Lombardy Plain. In the distance the land begins to rise towards the Apennines. Note the confused street pattern of the city; the number of tall masonry towers, which are in effect small urban castles surviving from the medieval times of violent feuds; the courtyard pattern of many of the buildings, which is derived from classical antiquity. (Aerofilms.)

the Piazza of San Marco in Venice. The republic of Venice continued in independence until the end of the eighteenth century; it then passed to Austria and later was incorporated into the kingdom of Italy. Its greatness waned when the trade from the East ceased to pass overland from Mediterranean ports. Its harbor is shallow, and Venice remains today a glorious fossil. On the mainland across the lagoon is the port of Mestre, heir to Venice, now a center for the import and refining of oil, and terminus of the pipeline which will cross the Alps to Germany.

Meadow is less important on the gravel terraces which surround the central plain, and wheat and corn are grown in the drier soil. The mulberry is grown, and its leaves are used to feed silkworms. The grapevine is also important, especially on the gentle, south-facing slopes. The plain is inter-

rupted by a number of small, isolated areas of volcanic hills, the Monti Berici and Monti Euganei, which also support large areas of vineyards. On the west of the plain are the Monferrato Hills, in reality a low spur of the Apennines. These, too, are suited climatically to viticulture and are one of the most important wine-producing areas in Italy.

Over much of the Po Plain the characteristic rural settlement is the *corti* village, a development probably from the villa of classical times, in which the houses, barns, and animal sheds are gathered round a rectangular courtyard. Toward the east, however, where the land has been reclaimed only recently, settlements tend to be linear in pattern and to consist of lines of houses built along a road or embankment. The pattern resembles closely that which has grown up in

Aosta, the highest town in the valley, is, like Susa, a road center and a station on what has been for centuries one of the most used of the Alpine roads.

To the east, Italy includes the southern slopes of the Pennine Alps (see page 292), Lake Como, and most of Lake Maggiore. The beauty of the Italian Alps is in parts hidden by the remoteness of the mountains and the difficulty of access to them, but here they show their full magnificence on the edge of the Italian Plain. The steep mountains are mirrored in the blue lakes. Around the shores are small villages and hotels and the slopes behind are terraced for vines. Winters, with a January average of about 37°, are milder than in Switzerland and a little warmer even than in the low Lombardy Plain. Summers are hot, rainfall is heavy, but sunshine is abundant.



East of Lake Como is a mass of hills and mountains. In the south are the Bergamasque and Breseian Alps, with gentle, rounded land forms and broad valleys, which pass northward into the lofty, snow-covered Bernina, Adamello, and Ortles (G: Ortler) Alps.

From the Adige Valley the Brenner Pass, lowest and easiest of the major Alpine routes, crosses the Alpine divide to Austria. South of the Brenner is the South, or Italian, Tyrol, an area where German peoples migrating southward over the passes have settled in the upper valley of the Adige. Both language and cultural traits are Germanic, and the region has now been given a measure of autonomy within the Italian State. The German population has, however, expressed the fear that the German character of the region will be submerged by the immigration of Italians, mainly from the south of Italy. Some have even advocated the annexation of this area to Austria.

East of the Adige Valley are the Dolomites (*It: Dolomiti*) and Venetian Alps, built in part of limestone, which has been eroded into fantastic shapes. The region offers the spectacle of steep precipices, isolated stacks, and serrated ridges; furthermore, it is well dissected by the Brenta, Piave, and their tributaries, which have opened it up to the tourist traffic.

In the northeast the Carnic and Julian Alps shut in the Lombardy Plain and cut it off from Yugoslavia. These are lower than the Dolomites. The Tagliamento and Isonzo Rivers have opened up routeways into these hills and through them into Austria. They consist for the greater part of high, bare limestone plateaus, in which percolating water has formed huge solution cavities.

The Italian Alps are warmer and more sunny than the Alps of Switzerland and Austria. Snow, however, is heavy in winter, as is suggested by the architecture. The photograph shows the small mountain resort of Cortina in the Dolomites. (*Italian Information Center, New York.*)

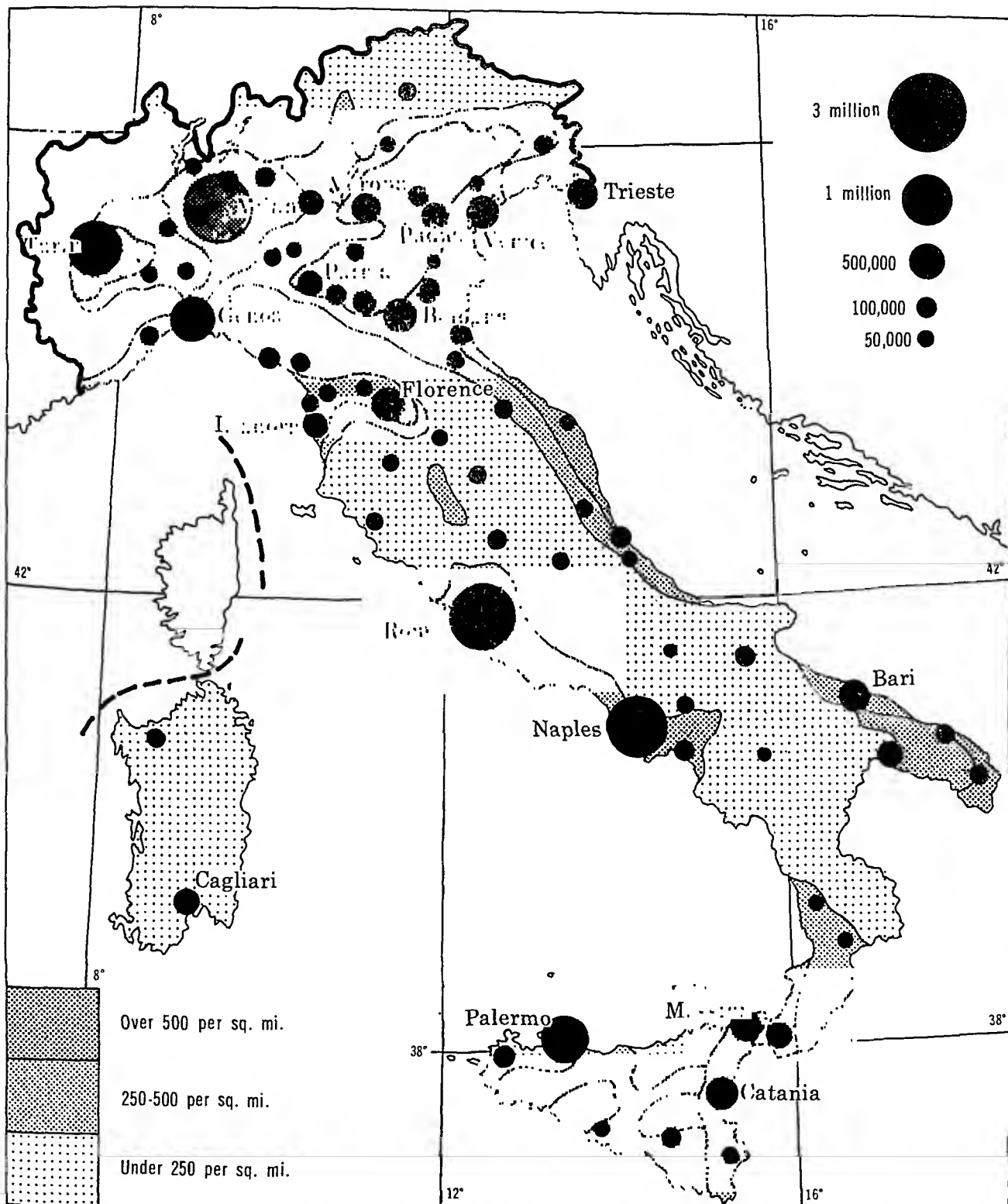


FIGURE 32-3. Italy: distribution of population and larger cities.

east to the foot of the Julian Alps. The plain has been for many centuries building forward into the Adriatic Sea. The Po has a complex delta, with lagoons and silted harbors, evidence of the aggradation that has taken place along this coastline within historical times.

The Lombardy Plain, as this region of lowland is called, is built up almost wholly of young soft sediments laid down by the Po and its tributaries. Around the margins of the plain is a belt, varying in width from 4 to 40 miles, of old alluvium and outwash. This material forms gravel terraces, generally permeable and dry, above the level of the center of the plain. The Alpine and Apennine Rivers cross these terraces in valleys, which are incised sufficiently to make irrigation difficult. The lower terraces are built of finer deposits above which springs issue. These make up the *fontanili*, or spring line. Many of the small rivers which flow to join the Po originate in this way below the line of terraces.

The center of the plain is composed of alluvium. The region is flat. Drainage is sluggish and often difficult, and the rivers sometimes flow between dikes, above the level of the plain for part of the year. The towns and villages stand away from the rivers for greater safety in time of flood, and the rivers are of very slight importance for navigation. The northern tributaries of the Po are torrents in spring and early summer, when they are fed by the melting Alpine snows, and from late summer onward their wide, shallow, stony beds are almost empty. The southern rivers, fed by Mediterranean rains, have a high level in winter and spring, and are low in late summer and fall.

The coast is also building forward at the mouths of the Brenta, Piave, Tagliamento, Isonzo, and Reno. In classical times Adria and Ravenna were ports. They silted, and their place was taken by Venice, growing up on sand flats in the coastal lagoons. Venice in turn is silting and losing ground as a port before Trieste. Much of the coast is fringed by dunes, behind which the brackish lagoons, marshes, and damp salt pastures have been reclaimed and converted to agricultural uses.

The alluvial plain itself is rich and fertile. Its soils have to be drained in many parts by ditches cut between the fields. Roads run straight across this flatland, bordered by the tall, dark, slender Lombardy poplars. A very high proportion of the land is cultivated. Holdings are small, and the population dense. Meadow is abundant, owing to the high moisture content of the soil, particularly in the central part of the plain. Here cattle are raised in large numbers, cheese for which Italy is famous is made, and pig rearing is a subsidiary occupation. Wheat and corn are grown where the soil is dry enough, and rice is planted in flooded fields of the Po delta and also in the plain west of Pavia, where irrigation water is readily available from the rivers which converge from the surrounding hills.

Towns are few in this central area of the plain. They have never had the advantage of good river communication, and movement by land over the flat and marshy Po Plain has not in the past been easy. Pavia, Piacenza, Mantua (*It*: Mantova), and Ferrara (155,000)¹ all lie in the plain, but only Pavia is out of reach of its floods.

Largest of the towns of this region is Venice (*It*: Venezia, 350,000), built on a low island in the lagoons to the north of the Po mouth and partially cut off from the sea by a dune-covered bar, known as the Lido. Venice is said to have been founded on this unpropitious site in the fifth century by refugees driven from the town of Aquileia which had been destroyed by the Huns. Venice abundantly illustrates the thesis that the "stimulus of a harsh environment" can sometimes produce greatness. These fugitives on their sandbanks developed a local trade, which, during the later Middle Ages, they extended to all parts of the Mediterranean. Venetian galleys sailed in the fifteenth century to the ports of northwestern Europe, and with the wealth which they earned the Venetians made their city one of the most beautiful in Europe. It would be difficult to find anywhere a group of buildings more impressive in their beauty and magnificence than those around

¹ The population in 1962 is given for cities of over 100,000. All cities of this size are named in the text.



The Italian government is attempting to breathe new vigor into the economic life of the south. This scene shows a new village in Calabria, a region known previously for its backwardness and depression. (Italian Information Center, New York.)

The Spanish chestnut, mulberry, and beech are the commonest trees, but nevertheless centuries of unrestricted felling have destroyed much of the former forest cover and left only a scrub that is often too light to bind the soil and check erosion.

In the Apuan Hills, west of the main range, are older rocks among which limestone predominates and is quarried as white Carrara marble.

The central Apennines form a tangled mass of hills carved in beds of limestone and clay. The limestone produces in some places extensive dry plateaus, in others, areas of rugged topography with sharp precipices and isolated peaks. The clay lands are more undulating but exposed to serious soil erosion. The range contains a number of small basins, some of them produced by faulting. Some of these are damp and ill drained, but most are well cultivated. A number of small towns lie in these basins and are focal points for the activities of the surrounding agricultural areas.

East of Aquila a high limestone plateau culminates in the Gran Sasso range, whose highest peak, Corno Grande, reaches 9,560 feet. Here in the Abruzzi, the mountains present a formidable barrier to communications between the east and west coasts. To the southeast are the similar plateau areas of Matese and Molise.

Throughout this central Apennine region the rainfall is light in the sheltered basins and for agricultural purposes has to be supplemented by irrigation. Agriculture is practiced by methods that can have changed but little since the Romans conquered these mountains from the Latin tribes.¹ Villages are compact and usually on hills in order to lift them above the damp ground of the valleys and to give them some protection. A subsistence agriculture is practiced. The low-growing scrub which has replaced the forests is grazed by the

¹ On this see Gilbert Highet, *Poets in a Landscape*, London, 1957.

northern Europe under similar geographical conditions. The Italian farmstead is often white, with a roof of red tile or of thatch. Around it are a few trees for shade, a garden patch, and some vines; beyond are the cultivated strips, the ever-present poplars which give shade and yet take up little room, the narrow, dusty roads, and the clumsy wooden farm carts and plows, drawn by teams of long-horned, soft-eyed Lombardy oxen.

The towns of the Lombardy Plain lie for the greater part around its margins, where the land is drier and movement easier. They lie in two distinct lines across the plain from west to east. The more northerly and on the whole the older of the two is close to the Alps. The towns of which it is composed grew up at the approaches to the Alpine valleys. Many of them have been important route centers since ancient times; all of them have been fortresses. Some have attracted modern industries, particularly cotton, woolen, and silk, because of the availability of hydroelectric power. Como lies at the end of the routeway which follows the Valtellina to Austria; Bergamo (117,000) and Brescia (180,000) lie at the very foot of the mountains; Verona (228,000) controls the approaches to the important Brenner route; and Udine those to the passes of the Carnic Alps.

To the east, beyond where the plain tapers away to nothing between the Alps and the head of the Adriatic, lies Trieste. It serves part of the commercial needs of northeastern Italy, but is far better placed to meet those of the Danube basin. It was once the chief port of the Austro-Hungarian empire, and was quite recently claimed by Yugoslavia (see page 361).

To the south lies a second line of towns close to or a little above the *fontanili* line. It includes Turin (*It*: Torino, 1,080,000), Vercelli, Novara, Busto Arsizio, Legnano, Milan (*It*: Milano, 1,629,000), Monza, Padua (*It*: Padova, 202,000), and Treviso. On the whole these towns are larger; Turin and Milan are the two most important industrial centers of Italy. At this distance from the mountains transport is less impeded by spurs from the Alps. Turin lies at the convergence of several valley routeways of the western Alps. In recent

times the availability of hydroelectric power has assisted the development of the metallurgical and automobile industries for which Turin is famous.

Milan also lies at the convergence of Alpine routes. It grew to be a wealthy manufacturing and commercial city during the Middle Ages, and it has not since ceased to be a center of manufacture and trade. Its industries are metallurgical, chemical, and textile. Around it are a great number of small towns and large villages engaged in the manufacture of textiles which are marketed in Milan. It is now the most important center of communications in the north Italian Plain.

A third line of towns has developed along the southern margin of the plain, in the province known as "Emilia." Most of these lie along a Roman road, the Via Emilia, from the coast at Rimini to the crossing of the Po at Piacenza. Along this line are Forli, Bologna (463,000) Modena (145,000), Reggio nell' Emilia (119,000), and Parma (153,000). To the west, on a tributary of the Po, is Alessandria. These towns are far from small, but they have failed to attract the industries which are a feature of the more northerly towns, perhaps because their water supply is small and irregular and the generation of hydroelectric power inadequate to attract industries. Most, however, lie at the mouths of Apennine valleys, and some, like Bologna, Parma, and Alessandria, control important crossings of the range. Bologna is the largest of these towns and lies where the ancient road from central to northeastern Italy crossed the Emilian Way.

PENINSULAR ITALY

The Italian peninsula is shut off from the plain of the Po by the northern Apennines. These mountains are the dominant geographical feature of Italy. Beginning in the Maritime Alps, they first trend eastward as the Ligurian Apennines. Their breadth and height increase. As the Tuscan Apennines they swing over to the east coast of the peninsula, then back again to the west, becoming yet wider and higher, until in southern Italy they break up into detached masses of which the last overlooks the Strait of Messina. Within the broad

the smooth hills of Tuscany. Monte Amiata reaches a height of 5,690 feet. The region has more forest than most in the Italian peninsula, and considerable areas are covered with *macchia*¹ scrub. The volcanic tuff of which the surface is composed is easily gullied and eroded. The towns, such as Orvieto, are often perched upon the summits of steep volcanic plugs. Volcanic craters are numerous, though none are now active. Some, like Bolsena and Bracciano, are filled with water, others form marshy depressions, and a few are cultivated. The volcanic hills reach to within a few miles of Rome, and south of the Tiber Valley they are continued in the Albano and Lepini Hills. These are not high but look impressive as they rise from the level plain of the Roman Campagna. Their soils, formed from volcanic dust, are fertile. The higher ground is wooded, but much is terraced for the vines and field crops, and large villages cling to the steep slopes.

Between the volcanic hills and the sea is a coastal plain of varying width, built up of deposits brought down from the hills. The coast is straight and is fringed by dunes blown up by the west winds. Small islands which once lay offshore have been joined to the shore by loops and bars of sand. The mouths of rivers have been choked, and the plain, known as the "Maremma," rendered marshy and of little value. In recent years progress has been made in improving or reclaiming these coastal marshes, which once served only to graze animals.

Campagna. The confusing terms "Campagna" and "Campania" are given to the coastal plain of Italy from the Tiber Valley southward to Naples (*It.*: Napoli). The Campagna is the valley of the lower Tiber, a fertile region of low, rolling hills, built of alluvium and volcanic tuff. It has always been comparatively free of marshes except close to the river and thus has escaped malaria, the scourge of the low-lying land of southern Italy. The valley routes open from the Campagna northward

toward Tuscany and eastward into the Apennines. Here on a group of low hills on the southern bank of the Tiber the city of Rome (*It.*: Roma, 2,279,000) grew up in early classical times. The "Seven Hills" gave the early Romans the advantages of altitude above the plain. The Tiber Valley gave them easy communications with the sea and their early port of Ostia, and with the central Italian hinterland. Rome became the center of the Roman Empire, and after its collapse Rome retained the respect and admiration of much of western Europe. With the end of the emperors, the bishops of Rome, or popes, inherited many of the attributes of the secular rulers. From the early Middle Ages until 1870 Rome was part of the secular possessions of the papacy; only then did it become the capital of the kingdom of Italy. Alongside the ruins of the civilization of the ancient Roman Empire—the Forum, the Coliseum, and the triumphal arches of Titus and Constantine—the Church built its basilicas and churches, of which the largest and most impressive is St. Peter's itself. These, along with the Vatican, or papal residence, chapels, and secular buildings, were embellished by the artists of the Renaissance, so that Rome became a place of artistic no less than of spiritual pilgrimage. During the last 80 years Rome has developed the duties of a secular capital. It is a focus of communications, but its industrial development remains relatively small. Since 1929 the papacy has again possessed a secular state in the form of the small Vatican City, across the Tiber from Rome.

Stretching to the south of Rome for 60 miles is a broad belt of coastal lowland, up to 20 miles wide. The coast is fringed with dunes. Behind these are salt lagoons, and between these and the hills a level plain, which, at least since the later years of the Roman Empire, has been marshy and ill drained, a barrier to movement and a source of illness and disease. Several attempts to reclaim this region had failed before, in 1926, the Italian government took the work in hand. The Mussolini Canal was dug to carry the drainage from the limestone Lepini Hills to the sea. The Pontine Marshes were crisscrossed by canals, and pumps were installed to lift the water from the fields

¹ This is the Italian equivalent of the French *maquis*, the Spanish *matorral*, and the American "chaparral."

curve of the central Apennines are Tuscany and Umbria, hilly regions with small areas of flatland along the coast or in the valleys. South of Rome and around Capua this coastal plain widens only to disappear as the Apennines again approach the west coast. On the east the coastal plain is narrow except in the south, where the mountains lie toward the west.

Both the Apennines and the Tuscan and Umbrian Hills are built of young rocks. Limestones, clays, and marls predominate in the south; sandstones are more common in the north. All these beds are soft and easily eroded, and the disturbance of the natural vegetation cover in ancient and medieval times has exposed the steeper hillsides to serious soil erosion. West of the Apennines there has been recent volcanic activity, and many of the hills north and south of Rome are of volcanic origin. In the vicinity of Naples the vulcanism is still active and the land is composed mainly of volcanic rocks. In Calabria, the "toe" of Italy, are two ancient crystalline massifs which, in both the hardness of their rocks and the ruggedness of their surface contrast strongly with the softer rocks of the Apennines.

The climate of peninsular Italy is Mediterranean but changes quite markedly between the north and the south. Southern Italy has very hot summers and mild winters, but in the northern Apennines winters are sometimes quite severe. January temperatures are below freezing point, and the snowfall is heavy. Even on the coast, in Rome, and as far south as Naples, sharp frosts and snow are not infrequent in the winter months. The distribution of rainfall also varies. In the north the summers are far from rainless, but toward the south the summer drought begins to show itself, and in southern Italy the summer months are quite dry.

The high temperatures bring about the rapid decomposition of humus, and the characteristic soil is the *terra rossa*, a red clay soil, deficient in lime. The limestone areas are often bare of soil. There are considerable areas of alluvial and volcanic soils which, owing to their chemical composition, are often very fertile. Peasants in the south brush up the volcanic dust from the roads

after an eruption of Vesuvius in order to use it on their fields as a fertilizer.

The northern Apennines consist of a number of short ranges trending generally from northwest to southeast. The rocks are soft and easily eroded, valleys are deep and narrow, and landslides are common. The Ligurian Apennines are narrower and lower than the rest of the range. They lie close to the sea and enclose the Gulf of Genoa like a wall. The coastal plain is here only a very narrow strip of land, scarcely wide enough for a town. The climate is mild. Genoa is warmer than Rome and little different from Naples, but the rainfall is heavy, and the cloudiness greater. Along the coast are a number of winter resorts from Ventimiglia to La Spezia (124,000), each occupying a small patch of flatland between the mountains and the sea. Genoa (*It*: Genova, 803,000) is the largest city. It stretches for almost 10 miles from west to east between the hills and the sea. The site is fundamentally suited for the development of a great port. There is no natural harbor on this bare and exposed coast, and much labor has gone to making the present port safe for shipping. Yet Genoa grew up as one of the few great ports of the Middle Ages, handling, like Venice, the produce of the East, which it sold in the cities of the West. Its advantage lay in the passes across the Apennines to the north of the city, which put Genoa into communication with Turin and Alessandria, from which routes radiated over the plain and across the alpine passes. Genoa is now the chief port for the north Italian industrial area, with varied industries of its own, which now include shipbuilding and steelmaking.

The Ligurian Apennines pass eastward into the Tuscan Apennines, which are broader and higher but in general not difficult to cross. They rise steeply on the southwest, dropping more gently toward the northern plain. The highest points are rather more than 5,000 feet above sea level. The mountains were never glaciated. Their summits are flat or rounded, and their valleys lack the distinctive landforms of a glaciated landscape. The valleys are cultivated, and the lower slopes terraced for the vine, but much of the higher ground is forested or covered with scrub.

south from the Sorrento peninsula is the Salerno Plain, an alluvial but still incompletely drained area, where crops are grown intensively on the drier ground and cattle raised on the wetter.

Inland from Naples the Volturno, with its tributary, the Calore, has eroded a valley which reaches far back into the Apennines and gives an easy communication with the east coast. The southern Apennines consist of a number of tabular limestone masses, separated from one another by upland basins in which lake deposits have accumulated. Rainfall is small in volume and irregular. Agriculture is heavily dependent upon irrigation, but the region has in the past been too poor to be able to afford the engineering works that are necessary. The lowlands are malarial. The hill slopes are steep, severely gullied, and liable to landslides. The villages and small towns are commonly built on the limestone, which forms the highest ground, in order to avoid these dangers. A third affliction of southern Italy is its liability to earthquakes, which have on many occasions destroyed whole towns. The region has been exposed to pirates and seaborne invaders. Settlement has in consequence tended to be highly nucleated and to lie back from the coast. Most of the population, though they work in the fields,

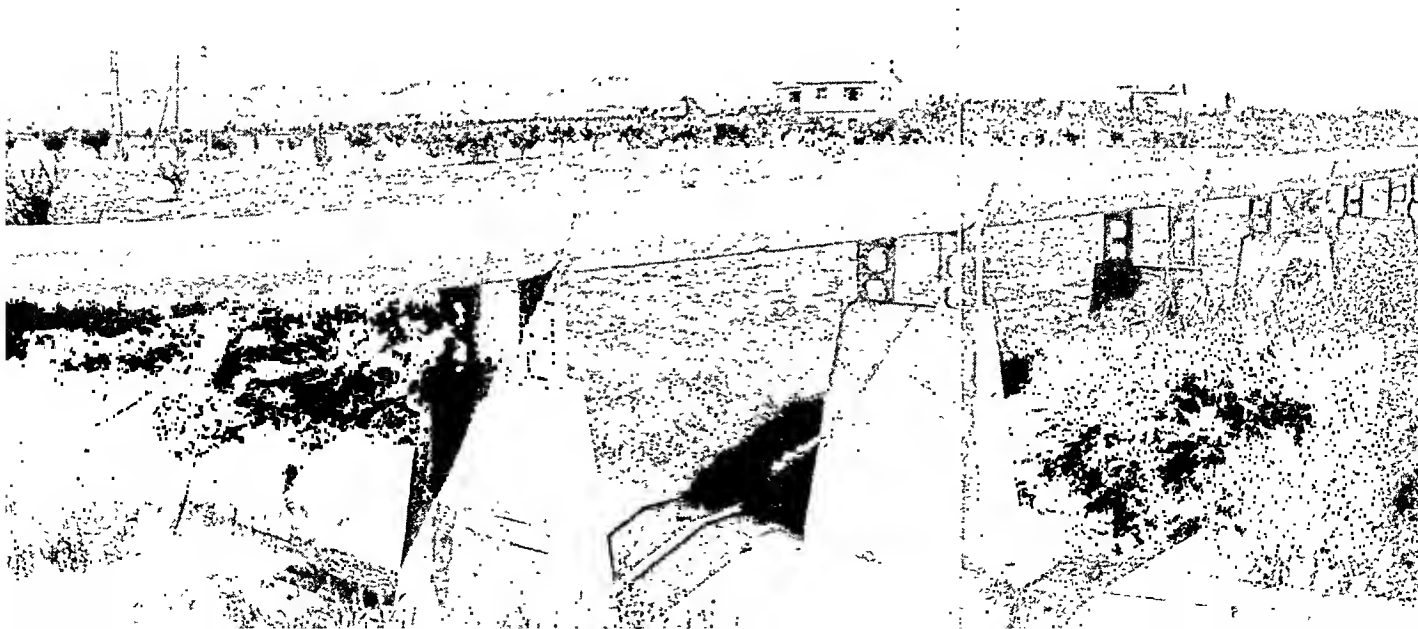
live in large, compact villages, often many miles from the fields.

Wheat, maize, and vegetables are grown in the valleys. Tree crops are important, though agriculture is still largely subsistence in the remoter areas. Much of the land is divided into large estates, which in many respects resemble those of southern Spain. The poverty of southern Italy has long been extreme. For so many centuries it has seen its best efforts frustrated by some human or natural cause that an attitude of despair and hopelessness has settled upon the region. The Italian government has in modern times carried through reforms and improvements in the center and north, but the attitude of the south is expressed in the phrase "Christ stopped at Eboli,"¹ a small town on the edge of the Salerno Plain and thus at the gateway to the south.

This has changed in recent years. The Italian republic established a public agency for the development of *il Mezzogiorno* (the south) in 1950, and already it has carried through extensive land

¹ *Christ Stopped at Eboli* is the title of a brilliant novel by Carlo Levi, which presents a vivid picture of geographical and economic conditions in Lucania.

Irrigation is one of the means of redeveloping the south. The photograph shows newly developed, irrigated lands near Catanzaro, in south Italy. (Italian Information Center, New York.)



sheep driven to these upland regions from the coastal pastures during the summer months.¹

Tuscany. Within the curve of the Apennines are four low-lying regions which present a sharp contrast to the rugged and poverty-stricken mountains which they border. The first of these is the basin of the river Arno, or Tuscany. The Arno rises in the northern Apennines and makes its way by a circuitous course to the Tyrrhenian Sea. Near Florence it leaves the mountains and enters the plain of Tuscany. This is itself broken by hill ridges which the river crosses by narrow gaps. The intervening plains are flat and, now that they have been drained, well cultivated. The central parts are still under grass, and dairy cattle are raised, but elsewhere wheat and maize are grown for local consumption, and everywhere there are vineyards, olive groves, and mulberry trees. To the south, low, rolling hills extend to the limits of the region. It is dotted with the brightly colored villages of the rural population, its elevations often crowned with the ruins of a castle of the Middle Ages. The slopes are covered with vineyards, and the whole "lighted with the dark green candle-flames of the cypress trees." Toward the east the grapes of the Chianti Hills provide the wine of the same name.

Florence (*It: Firenze*, 448,000) is in every respect the capital of Tuscany. It is a large city with a distinguished history and noble buildings. It lies on the northern bank of the Arno where the river enters the plain, at a meeting place of trans-Apennine routes and roads southward to Rome. Above all, Florence became the seat of the greatest of the princely houses of medieval Italy, the Medici, who lavished their wealth on its beautification.

Within the Florence Basin are the old but small towns of Prato and Pistoia, lying where Apennine routes open on to the plain. The Arno has never

been easily navigable. Pisa, some 8 miles from the sea, was the medieval port through which passed the commerce of Florence. In the later Middle Ages Pisa silted, and its decline was further assisted by the actions of its rivals in choking its harbor mouth. Pisa was replaced by Leghorn (*It: Livorno*, 164,000), about 12 miles to the south and safe from the silt brought down by the rivers. Small rural towns are scattered about the plain behind. One of these, Lucca, lies in the center of an olive-growing area—olives are grown only near the coast owing to the danger of frost—and is a well-known market for the oil.

Siena lies in the center of the hill country of Tuscany in a valley which extends from the Arno Valley southward toward the upper valley of the Tiber (*It: Tevere*) and provides a routeway of considerable importance. Siena is a typical central Italian town, lying upon a low hill, with its houses gathered close around its *piazza*, or square, and its cathedral.

Umbria. Lying to the south of Tuscany is Umbria. It is a country of rolling hills, of poorly cultivated or scrub-covered upland, of well-cultivated valleys, of villages and small towns perched on the hill-tops for defense against both invaders and the mosquito. The plains and basins once contained lakes, which have left rich and level though ill-drained plains, through which meanders the infant Tiber.

The Val di Chiana, in which lies Lake Trasimene, all that is left of a once-large lake, is one of the largest of such basins. At its northern end is Arezzo. To the east is the lake basin of Perugia, commanded from the heights of the surrounding hills by Perugia, Assisi, and Spoleto. They have strong natural defenses, and today they exist to serve the needs of the agricultural region in which they lie. Assisi has further become a religious center owing to the life and burial here of Saint Francis of Assisi, and great wealth and care have been lavished on its adornment.

Lying between the Tiber Valley and the sea is a region of recent volcanic activity. There are numerous peaks and craters which together produce a topography very much more rugged than

¹ See the novels of Ignazio Silone, *Fontamara* and *Bread and Wine*, for a vivid description of the life in the villages and small towns of Marsica and the Fucino Basin.

SICILY

The island of Sicily is separated from the mainland of Italy only by the narrow Strait of Messina which, at its narrowest, is only 2 miles wide. Sicily continues the landforms of southern Italy, which it very closely resembles. The island is triangular in shape. In the northeast the Peloritani Mountains are a continuation beyond the Strait of the Aspromonte of Calabria. They consist of crystalline rocks and are rugged and forbidding. Their direction is continued westward in the Nebrodi and Madonie ranges and the tangled hills of western Sicily. These hills are built, like the Apennines, of limestone and sandstone which often produce a very strong relief. They rise to over 6,000 feet and drop steeply to the Tyrrhenian Sea on the north. The coastal plain is very narrow but is well watered and densely settled.

Toward the south this line of hills drops more gently to an undulating plateau developed in beds of clay. The land here is heavily eroded and, locally at least, liable to landslides. In wet weather it is marshy and badly drained; in summer, parched and hard. Much of it has the appearance of a barren and treeless wilderness, but large quantities of wheat are grown, and Sicily has been, from classical times onward, a considerable exporter of grain.

South of the Nebrodi Mountains is Etna, an active volcano of much greater size than Vesuvius. It rises to a height of 10,741 feet above the nearby coast. It is a symmetrical ash and lava cone of great beauty. For much of the year its summit is streaked with snow. Below are scrub and forest. Cultivation has pressed far up its fertile sides, and its lower slopes are covered with lemon and orange groves and vineyards. The volcanic ash has added to the fertility of the surrounding plains, which are densely populated. South of Etna is the plain of Catania, the largest area of lowland in Sicily, but much of it is too dry for cultivation. Along the southern coast, where the climate is somewhat moister, cotton and flax are grown, and there are orange, lemon, and almond groves.

The population of Sicily is almost wholly

gathered into large centers which are urban in size but rural in occupation. Some of these were planned and founded in the sixteenth and seventeenth centuries to accommodate the rapidly increasing population. Small villages and scattered settlements are rare. Most of the larger coastal plains have each a large, partly urban, partly rural settlement. Palermo (595,000) is the largest and has a number of industries related to its agricultural hinterland. Catania (372,000) lies on the edge of the Catanian Plain. Messina (257,000), Syracuse (*It.* Siracusa), Agrigento, and Marsala are smaller but similar agricultural settlements. Marsala is the focus of the wine industry of western Sicily.

The mineral resources of Sicily are not unimportant. Gypsum occurs in the clay beds of the center. Rock salt is mined near Agrigento as well as being dried in pans along the coast. Sulfur is mined around Caltanissetta and Enna and refined by primitive methods, which destroy much of the sulfur as well as most of the vegetation of the surrounding countryside.

The Lipari Islands are a group of seven islands lying in the Tyrrhenian Sea off the Sicilian coast. All are volcanic in origin, though volcanic activity has long since ceased on most. Vulcano, however, the nearest island to Sicily, is still the scene of hot, sulfurous springs, and Stromboli is almost continuously active. The population of the island group is small. Agriculture and fishing are the main pursuits, and the islands are an important source of pumice, a fine volcanic tufa which is used as an abrasive.

SARDINIA

Sardinia is a large compact island which had long been a possession of the royal House of Savoy before it became part of the kingdom of Italy. The island is very largely built of hard crystalline rocks, which give it an irregular relief and produce a rugged coastline. The eastern half of Sardinia consists of a granitic mass, which forms an undulating plateau and rises in the Genargentu Mountains to heights of almost 6,000 feet. Deep valleys have been cut by the short

and to drive it toward the sea. A number of agricultural settlements were established, beginning with Littoria in 1932, and the plain has since been divided into holdings of from 20 to 60 acres and leased to peasants on a sharecropping basis.

Campania Spurs from the coastal ranges reach out to the sea between Terracina and Gaeta, but south of the Liri River a similar area of lowland, the Campania, extends south to the Sorrento peninsula. This plain has been the scene of violent volcanic activity through the span of recorded history, and it is still far from extinct. In the north is an extinct cone. At the opposite end of the plain is Vesuvius, an almost perfect cone which rises 3,891 feet from the shores of the Bay of Naples. It is often in a state of mild activity. "From the cone of Vesuvius across the bay rose thick columns, densely spiralling, of purple smoke shot with a fierce flush or melting glow of pink. High into the tall and clouded sky they rose in oily whorls, until the upper wind caught and bent them suddenly, and sent them flying over the sea in a flat brown canopy from which descended the close volcanic dust. Oozing from the crater's lip and trickling down the upper slope of the mountain came scarlet rivulets, thick and slow, of molten lava. Below them, under clouds of evil smoke, the glaciers of iron-dark cinders crawled down hill, filling the hollows, shirking heights and promontories, and crushing houses, tumbling pines and chestnut trees in their sluggish flow. . . . At night the molten lava, creeping slowly in blunt-headed streams, shone like wet silver, and the dark air smelt more strongly of sulphur."¹

Between lie the Campi Flegrei, a small area where there survives the wreck of a former volcanic cone, with a number of small craters and hot, sulfurous springs. Near Pozzuoli it is possible to walk over the warm, hollow-sounding crust of lava that has congealed on its floor and through which the lava spurts at intervals in small holes which form in its surface. Former eruptions of Vesuvius have left a trail of destruction. To the

south are the excavated remains of Pompeii (*It: Pompei*), a Roman town overwhelmed during the eruption of A.D. 79 by mud which washed down the sides of the cone. Herculaneum (*It: Ercolano*), on the shore of the bay, was buried by hot ash.

Campania is crossed by the Garigliano and Volturno Rivers, whose valleys form inland extensions of the Campanian Plain. The alluvium of which the plain is built has been worn from the surrounding volcanic hills, and over the region in times of eruption there settles the fine fertile dust. The region is one of the very highest fertility. Its agricultural population is dense, and its holdings are small and intensively cultivated. Wheat, maize, and vegetables are grown. The vines and olive, lemon, and orange trees have vegetables planted between them, so valuable is the land. Cultivation climbs high on the slopes of Vesuvius and intrudes into the steaming, sulfurous craters of the Campi Flegrei. Despite the fertility of the soil and the intensity of its cultivation the region is one of great poverty. Villages are often mean collections of shacks, grouped like those of the northern plain around a central courtyard.

The poverty of the Campania culminates in Naples (*It: Napoli*, 1,192,000). Its situation at the foot of Vesuvius and on the shores of the Bay of Naples has become a byword for beauty. The town itself is untidy and sprawling. Many of its buildings are decaying, and its huge population is underemployed. It collects the surplus of the overpopulated south, but its metallurgical, engineering, and textile industries, despite their recent growth, are insufficient for full employment. It is, however, a commercial port and has road and rail communications with its central Italian hinterland.

South of Vesuvius the steep-sided, craggy peninsula of Sorrento projects some 12 miles into the Tyrrhenian Sea. Its rugged beauty and the splendor of its little coastal towns, like Amalfi and Sorrento, which begin at the water's edge and climb the almost precipitous mountain with their steep, narrow streets built tier above tier, have made it a tourist center. Off the extremity of the peninsula is the island of Capri, perhaps the most renowned resort on the Italian coast. Stretching

¹ E. Linklater, *Private Angelo*, London, 1946, pp. 105-108. The description is of the eruption of 1943.

become very dry in the heat of summer. Irrigation is less practiced in the center and south of Italy, where it is actually more needed. There are fewer sources which may be tapped, and these require engineering works that have in the past been generally beyond the means of the region. Conditions are best in the northern plain and worst in the south and Sicily. Mention has also been made in various places of the distribution of crops.

Animals are widely distributed in Italy but their quality is often poor, and only in the more advanced areas is sufficient attention paid to scientific breeding. Cattle are most numerous in the plain of the river Po, where there are extensive areas of permanent grassland, but they are found throughout the peninsula, and often serve both as dairy cattle and as draft animals. Pigs are similarly widespread except in the dry areas of the south. In a few places, as in Lombardy, they are kept in association with cattle, but in general they are regarded as scavengers. Sheep and goats are able to live in the poor, dry *macchia*. In the past transhumance was extensively practiced, as it was in Spain. *Tratturi*, or sheep walks, linked the winter grazing of the Maremma and other lowland areas with the summer pastures of the Abruzzi, but reclamation and improvement of the lowland areas have greatly restricted this practice. Goats are most common in the south, Sicily, and Sardinia, where they tend to replace cattle as a source of milk. They are easily fed on the dry plant growth, but the resulting destruction of the vegetation cover has been an important cause of soil erosion.

The resources of Italy are not well adapted to industrial development. Reserves of both coal and lignite are very small, and output of bituminous coal is considerably below a million tons a year. Most of the coal consumed in Italy has to be imported. Deposits of petroleum and associated natural gas are very much larger, and Italy ranks as one of the larger of the European sources of petroleum. Oil and natural gas deposits were first developed on the southern edge of the Lombardy Plain. More recently extensive deposits have been discovered in southern Sicily. In 1962 this oil field

yielded nearly 2 million tons of oil. Even so, much of the oil has to be imported. Nor is Italy much better endowed with metalliferous minerals. She has large reserves of mercury, chiefly in Monte Amiata in Tuscany, and in 1960 produced about a quarter of the world output. Bauxite for aluminum is mined in the southern Apennines but amounted to only about 2 per cent of the world production. Iron-ore output, chiefly from Elba and the coastal range of Tuscany, is also small. Certain other minerals, such as gypsum, sulfur, common salt, building stones, and the materials for the manufacture of cement, are obtained on a large scale, and there is some export of these materials.

Industrial power is heavily dependent upon the rivers of the Alps and Apennines. The total production of electric power is today over 49,060 million kilowatt-hours, of which 77 per cent is hydroelectric. Most of the electric current is used in factories and in transportation. The chief sources are in the Italian Alps and northern Apennines. The regimes of the rivers of these two regions are strongly contrasted. The Alpine rivers discharge most abundantly in summer; the Apennine rivers in winter and spring. Their current generation is thus complementary, and by linking the two areas the deficiencies of each can in some degree be made good. The greater production by far is from the Alpine streams. Power generation in the south is small, partly owing to the less-favorable river regime and partly on account of the smaller degree of economic development in this region.

The textile industry is the most important of Italy's manufacturing industries. One of the oldest branches is the manufacture of silk cloth. The silkworm was introduced early in the Middle Ages, and Italy is now the most important European country for the production of silk. The worms are reared and tended by the peasants, an unpleasant and laborious process. The monetary reward is small, and the practice is continued only in areas where the peasantry is very poor. The cocoons are reeled and the silk scoured in numerous small mills in the silk-producing areas. The weaving of silk fabrics is more concentrated. Como is its

reform and has made a start with the introduction of modern industry into this backward area.

Calabria. In the so-called "toe" of Italy, or Calabria, rocks older and harder than those of the Apennines make their appearance. The massifs of Sila and Aspromonte consist of crystalline rocks, which yield only thin, poor soil. These hill masses are separated from the southern Apennines by the plain of the river Crati, a dry area but liable to sudden floods, where the land is largely devoted to grazing. The mountains are themselves forested or scrub-covered. The population is small, and agriculture unimportant. The largest city, Reggio di Calabria (154,000), lies at the tip of the peninsula, facing across the Strait of Messina to Sicily. The coastal plain is very narrow but contains most of the population of Calabria. Its soil is generally fertile, but the streams which flow as winter torrents from the mountains change their courses frequently and may spread gravel and sand over the fields. In this way was obliterated the site of the classical city of Sybaris, so renowned in ancient times for its good living.

The narrow strip of land between the hills and the sea is one of the most important areas in Italy for the cultivation of oranges, lemons, and other citrus fruits. Vines and olives are also grown, figs are dried for export, and mulberry trees feed the silkworms. Settlement here also is in large villages, which stand away from the coast and often on rising land for protection. The region once knew a greater prosperity than it enjoys today. Along its eastern coast were city-states founded by the Greeks. Some of these once-flourishing towns are now no more than villages, and once great Sybaris and Croton have completely disappeared. This decline is probably to be attributed to a combination of war and piracy, deforestation and soil erosion, and a bad system of land tenure.

APULIA

The Apennines leave but a narrow coastal plain on the east, at most 20 miles wide and often less. It is built of young clays and marls, which have been eroded into a series of ridges and shallow

valleys. Rainfall is small, though adequate for the cultivation of wheat, the most important crop of this region, and the rural population is relatively dense. Toward the north the pattern of settlement is more scattered, perhaps because the peculiar dangers of the south were here less serious. Southward, however, toward Apulia and the Mediterranean Sea, the compact pattern of settlement becomes more common. The coast from the peninsula of Monte Gargano northward to the beginnings of the Lombardy Plain is straight and unbroken. Only the headland of Monte Conero gives some protection to a small bay on which has grown up the only important port on this coast, Ancona.

Monte Gargano is an isolated limestone mass which projects into the Adriatic Sea. Between it and the Apennines is the plain of Tavoliere. East of this is another limestone tableland, which diminishes in height eastward as it passes into the "heel" of Italy. Rainfall is low, and few places have more than 20 inches in the year, almost all in the winter months. The short streams are torrents at this time, and for the rest of the year their boulder-strewn beds of gravel and sand lie hot and dry under the sun. Water is inadequate even for human use, and streams from the west of the peninsula are brought by tunnel and aqueduct to the Tavoliere. The limestone areas are waterless; there are large areas of bare rock and yet larger ones where the only vegetation is *macchia* scrub. The difficulties of irrigation are so great that tree crops, particularly the olive, are grown most often.

There are few villages; most of the population, the majority of which is engaged in agriculture, lives in towns of considerable size. Apulia, which was more exposed to piratical attack than any other part of Italy, developed this protective settlement pattern to the highest degree. Bari (317,000), on the east coast, and Taranto (196,000), at the head of the Gulf of Taranto, are both industrial centers. Taranto has developed on the shores of a large harbor, which has provided a valuable naval base. Brindisi is a commercial port and important as a port of call for passenger vessels sailing through the Mediterranean.

ment as to be too expensive for so poor a country. At home Mussolini waged the "battle of the grain," urging his followers to work harder in the fields and to reclaim marsh and waste. But the hard-working Italian peasant already cultivates as much land as is possible without a greater capital investment.

At present industrialization is proving to be a more satisfactory remedy, and is both absorbing surplus rural population and raising living standards. Today, Italy has become a significant exporter of automobiles and scooters, themselves almost an Italian invention, as well as typewriters, cameras, and other light consumers' goods. Emigration, however, has not been given up. There is a significant outflow of people each year, particularly to North and South America and to Australia. Even more important is the internal migration, from the south to the north, from the less to the more industrialized regions of the country. Table 32-1 shows the pattern of Italy's foreign trade.

TABLE 32-1. Chief Elements in Italy's Foreign Trade, 1962 (In Millions of Lire)

Item	Imports	Exports
Food	488,711	396,906
Beverages and tobacco	36,677	48,061
Crude materials, inedible	885,505	106,373
Mineral fuels	505,409	163,017
Animal and vegetable oils and fats	67,205	6,711
Chemicals	242,375	223,265
Manufactured goods	682,578	640,298
Machinery and transport equipment	748,777	888,664
Miscellaneous manufactured articles	119,520	429,282
Miscellaneous transactions and commodities	8,485	13,714
Total	3,785,241	2,916,290

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1963.

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rivers, and in these, in more favored hollows in the plateau, and over the granitic plateau are the few settlements and areas of cultivation. Over the granitic plateau as a whole, pastoral activities predominate, and large flocks of sheep and goats are kept on the *macchia*.

West of this plateau is a more broken region of recent volcanic rocks, its scrubby vegetation given over to pastoralism.

Areas of low-lying and productive land are small. In the northwest is the small plain of Sassari, a well-cultivated region where wheat, vine, and olive predominate. The plain of Campidano lies diagonally across Sardinia from the middle of the western hills. This plain is potentially an area of considerable productivity, but it lacks water in spite of attempts to irrigate it from the hills on each side. In summer it is parched, and in winter, damp and malarial; but recently most of this region has been reclaimed and is now under cultivation. Near the coast is Cagliari (189,000), the capital and port, a small town with a good harbor from which small boats sail to the mainland. For the rest, the coast is deserted; coastal settlements have always been unsafe unless strongly protected.

Economic Development

Despite the recent development of manufacturing industries, Italy remains an important agricultural country; 26 per cent of the employed population is on the land, though this proportion has been dropping steadily in recent years. As in so many countries where agriculture is the dominant occupation, it is often carried on by old, primitive methods. Yields are low, and the rural population poor. Nor is the land particularly well suited to intensive agriculture. Soils are good only in a few areas, such as the Campania and the northern plain. Rainfall is seasonal over much of the country and in some parts inadequate. Far more irrigation works are needed than have hitherto been constructed. Furthermore the peninsula is hilly, and its soft rocks are easily eroded when the vegetation cover is disturbed.

The system of land tenure in Italy shows evils similar to those which we have found in Spain. Farm holdings, especially in the very fertile areas, are too small for economic and efficient farming. Only in Tuscany, Umbria, and the Campagna are there holdings which might fairly be described as adequate in size. A majority of farm holdings, most of them very small, are owned by the families which work them, but a large proportion of the total area has long been in the form of large estates, particularly in the south and Sicily. Attempts are being made to break up these estates and already almost 2 million acres have been acquired for distribution among the small peasant farmers.

The rural population is too large, and there has been for very many years a steady migration of peasants from the land, especially in the south. In the past, much of this surplus population emigrated to the United States. Some has gone to North Africa, and some has merely been swallowed by the vast squalid towns such as Naples and Bari, where it lives in indolence, hunger, and disease. The outlet which migration formerly supplied has now in large measure been closed, and under the Fascist rule, attempts were made to increase the area of agricultural land within Italy. These took the form of the drainage and reclamation of lowland marsh areas and the improvement and reafforestation of areas of hill. Most noteworthy of these achievements has been the reclamation of the Pontine Marshes, but similar work has been done in the Maremma, in the Campania, and in the Po Valley. Most recently, attempts to remedy this problem of overpopulation in the Italian south have taken the form of industrial development within the area and the movement of part of the surplus population to industrialized areas in other parts of Italy.

Over much of Italy the rainfall is seasonal and irrigation is of great importance, especially during the dry summers. The northern plain, where there is sometimes a large rainfall in the summer months, is also extensively irrigated. Here the water from the Alpine rivers and from the springs of the *fontanili* line are fed southward by canal to the meadows and the crops, which despite the rainfall

Greece

33

Greece, the third of the three Mediterranean peninsulas of Europe, differs markedly from the other two. It has neither extensive coastal plains, like Italy, nor a wide interior plateau, like Spain. The Greek peninsula is built of rugged mountain ranges, with steep and narrow valleys, few basins or plains, either upland or lowland, and only a narrow and discontinuous strip of lowland around the coast. It is, as Plato described it in the "Critias" more than 2,000 years ago, like "the skeleton of an emaciated body; the good productive earth has disappeared."

The Greece of today comprises most of the peninsula and of the continental base from which it extends, and certain island groups lying both to the east and to the west. The Greece of classical times consisted of the periphery of the Aegean Sea, and the sphere of ancient Greek culture embraced areas which now form part of Turkey. At no point does modern Greece extend to the eastern margin of the Aegean Sea, though until 1923, large Greek communities continued to live along this coast. The whole of modern Greece lay, at the beginning of the nineteenth century, within the limits of the Turkish Empire. Much of the peninsula achieved its independence by a revolt from the Turks. The Ionian Islands were acquired in 1863. Thessaly

chief center, but silk weaving is also carried on in numerous small towns and villages of the Alpine foothills.

The woolen industry is more widely distributed. Much of the wool is imported, though originally the sheep of the Alpine foothills and of the Apennines supplied most of the wool used. This early source of materials, together with the availability here of water power, has determined the location in these areas of most of the Italian woolen industry. The small towns of Piedmont predominate in the spinning and weaving of wool, and Biella is to the woolen industry what Como is to the silk. Woolen mills are, however, found throughout the foothills belt from Turin to Udine as well as in many small towns of central Italy.

Cotton manufacture was practiced in Italy before the nineteenth century, but it was not until after 1800 that it was established on a large scale. From the first, Lombardy was the center of the Italian cotton industry. The earliest mills were on the edge of the hills to the north of Milan, and still the most important manufacturing centers are Milan and its industrial satellites, Legnano, Gallarate, and Busto Arsizio.

The manufacture of synthetic fibers has been established close to the older centers of textile manufacture, partly on account of the availability here of power and water, partly because a labor force accustomed to the processes of textile manufacture was available here. Most of the factories are in small towns near Turin and Milan. Lesser textile industries, such as the manufacture of lace and of flax, hempen, and jute fabrics, are distributed throughout Italy and carried on mainly in very small mills.

The iron and steel industry is limited by the relative absence of coal and ore. Little smelting is carried on and in 1962 only 3,678,000 tons of pig iron were smelted. Steel production, however, amounted to 9,490,000 tons, owing to the heavy use of scrap metal. The Italian steel industry is therefore a heavy user of imported pig iron and local scrap. The chief integrated iron- and steel-works are on the coast near Genoa and Naples. Much of the steel produced is used in the auto-

mobile industry of Turin and Milan and the shipbuilding industry of Genoa. The dependence on electric power has encouraged the development of electrical engineering. A wide range of light steel goods is produced, and in the large towns of the northern plain agricultural machinery is made.

The metallurgical and engineering industries are heavily concentrated in and around Turin and Milan, though a number of smaller towns, such as Brescia, Vicenza, and Bologna, are also important. Several small quality-steel producers are located in the Alpine valleys, where they use electric furnaces for their refining processes. The coastal towns Savona, Genoa, La Spezia, Naples, Taranto, and Venice are centers of heavy industries, not only shipbuilding but also those industries which rely heavily upon imported materials.

There is a close railway network in the northern plain, but peninsular Italy is by no means served. Main lines follow the eastern and western coasts, with only a few lines across the mountains.

It is in line with the high reputation of the ancient Romans as road builders that the Italians have in recent years developed a network of expressways second only to that of Germany. In its geographical pattern the network of roads of all qualities is broadly similar to that of the railways, most developed in the northern plain, least developed south of Rome.

The basic problem of Italy in recent years has been one of acute overpopulation. Her population, about 50,464,000 in 1961, is increasing rapidly and is threatening to outstrip the capacity of the country to support it. The remedy in the nineteenth century was migration. The population of the United States contains about 5 million inhabitants of Italian origin, and there are considerable Italian colonies also in South America and Australia. When, in the twentieth century, this outlet began to close, the Italians turned to colonization within their own empire and to the intensification of agriculture at home. Neither method really succeeded in its objective. The Italian empire was not suited for mass migration, and the settlement of each family required so much equip-

duced the woodland cover, though this remains one of the best-wooded areas of Greece. Rainfall is heavy, especially on the west-facing mountain slopes, and increases in volume and in duration northward. Summer temperatures are moderated by the altitude. Winters are often severe, and deep snow may accumulate and remain well into the summer.

The relief of Epirus (*Gr*: Epeiros) and western Greece is lower than the central mountains, but the difficulties which it presents to movement are no less great. The region consists of a series of ranges lying parallel to the coast and built of folded sedimentary rocks. It is more productive and more densely peopled than the mountains of the center, and around the deep, shallow Gulf of Amvrakia (*Gr*: Amvrakikós Kólpōs) is the most extensive of the few areas of lowland, the plain of Arta. This was formerly marshy and ill drained, but much of it now makes highly productive land. The climate is milder than in the interior, and rainfall, quite heavy except in the sheltered valleys of the interior, occurs largely in winter. Rivers are merely short torrents which in winter and spring cascade from the mountains to the sea and in summer dry away in their boulder-strewn beds. Despite the better physical conditions, agriculture is backward. Wheat, the vine, and the olive, the three staples of Mediterranean agriculture, are grown, with tobacco and corn. The agriculture is largely subsistence, and the holdings small. Neither fertilizer nor crop rotation is regularly used, and the productivity is low.

Eastern Greece is historically the most famous and important part of Greece, as it contains Athens and Attica (*Gr*: Atticé), the shrine of Delphi (*Gr*: Delphoi), and the ancient cities of Thebes (*Gr*: Thévai), Megara, and Eleusis (*Gr*: Elevisis). Topographically it is very broken. A series of short ranges extend eastward or east-southeastward from the central mountain mass. Between are small, alluvial plains. Of these the plain of Thessaly and the valley of the Kifissos River, the classical Boeotia, are the largest. The shallow Lake Copais (*Gr*: Kōpaïs), which formerly occupied the center of this plain, was drained in the later years of the nineteenth century, and

its site is now agricultural land. The more famous plain of Attica is smaller and broken up by isolated hills, on one of which lies the citadel, or Acropolis, of Athens (*Gr*: Athenai, 1,853,000).¹ The city grew up during the first millennium B.C. on the steep-sided hill which gave protection to its early inhabitants. The settlement spread over the surrounding lowland. Even in classical times, Athens was linked with its port of Piraeus (*Gr*: Peiraiēvs) on the Gulf of Salamis by the "Long Walls." Now Athens and Piraeus are merged into one city, which embraces the port, the governmental and business offices of the modern capital, and on the Acropolis, the remains of ancient Athens.

Winters are mild, summers are hot, and rainfall is slight and limited to winter. Athens has a January average of 48°, a July average of 80°. Agriculture is better practiced than in the regions just considered, though irrigation is required in most parts at some time of the year. Grain crops and fruit are grown, and on these eastern plains tobacco and cotton are produced for export. Beyond the narrow Atalante Channel, the classical Negropont, is the island of Euboea (*Gr*: Evvoia), a long, narrow, and hilly island, in many respects similar to the mainland.

East of the mountainous central area is a number of lower ranges of hills. These are broken up by rivers into short segments, which enclose and surround areas of lower and flatter land. In the north the broad plain of Thessaly stretches from the coastal mountain range to the foothills of the Pindus Mountains. This area, formerly a lake basin, is covered with alluvial soil and has from classical times been noted for its fertility, but it remains marshy in parts, liable to flooding, and malarial. Much of the lower land is cultivated, though in winter it is visited by the flocks of sheep and goats, often owned by seminomadic Vlach herdsmen, which spend their summers on the high pastures of the Pindus. There are a few small towns in the plain of Thessaly. Larisa (55,000) is the largest; some of them are fortresses built in the

¹ The population in 1961 is given for all cities of over 50,000.

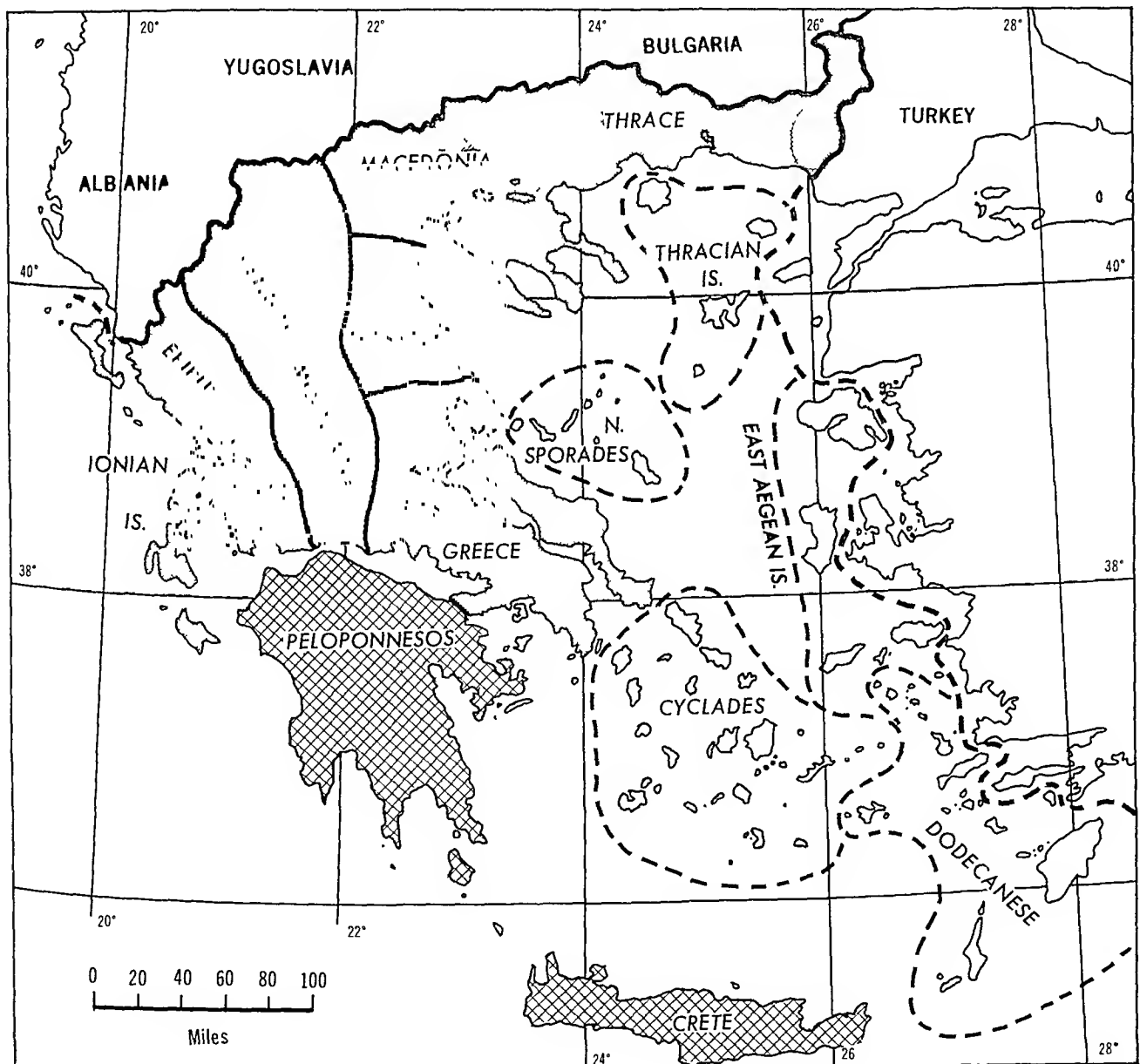
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which has been cut the Corinth Canal. The mountains of the Peloponnesus continue the direction of the Pindus Mountains, but they are broader here and split up into a number of separate mountain chains. Within the mountains are a number of enclosed basins, whose rivers break through the encircling mountains to the sea. From northwest to southeast across the region is a structural trench, drained by the rivers Alpheíós and Evrotas. Along the northern and western margins is a belt of

lowland, and smaller plains lie at the heads of the gulfs on the southern and eastern coast.

The climate is even milder here than in western Greece. The summers are hot, and rainfall is almost wholly confined to the winter months. Much of the land has been deforested and is now covered only by *maquis*. Stands of pine survive on the higher and less-accessible lands, but large areas have been practically denuded of soil by erosion and the persistent nibbling of the goats,

FIGURE 33-2. Greece: landform regions.



was added in 1881; the northern territories of Greek Epirus, Macedonia, and western Thrace, together with Crete and the larger Aegean islands, in 1913; and eastern Thrace in 1923.

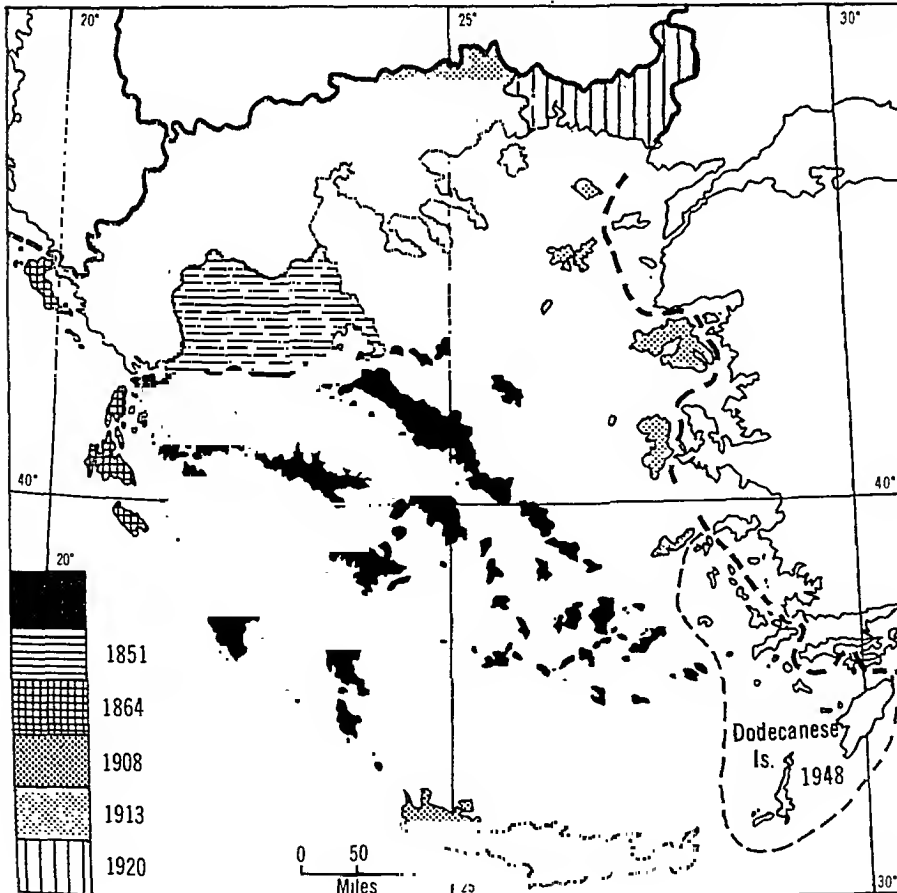
THE GREEK PENINSULA

The center of the Greek peninsula is occupied by a range of folded mountains of extreme geological complexity, great ruggedness, and sparse population. They extend southward from the boundaries of Yugoslavia and Albania to the shores of the Gulf of Corinth. There is no name for the range as a whole. In the north it is broken into a number of separate mountain blocks, between and around which movement is possible. Between these formerly ran the Roman road from the Albanian coast to Macedonia, Thrace, and Byzantium, but the

gaps have been important in modern times rather for their potential than for their actual value for commerce. In such gaps in the range lie Lakes Ohrid and Prespa, through which runs the frontier of Yugoslavia and Albania. South of the Greek frontier the range becomes more continuous and its barrier nature is accentuated. In the north of this section it is known as the Grammos Mountains and farther south as the Pindus (*Gr*: Píndhos) Mountains.

There are no towns and few large villages in central Greece. In the north the population still contains a very few Vlach herdsmen, who move seasonally up and down the mountainsides with their animals. Little agriculture can be practiced in these desolate mountains. The region was once well forested, but destruction of timber for commerce and in the course of wars has greatly re-

FIGURE 33-1. The territorial growth of modern Greece.



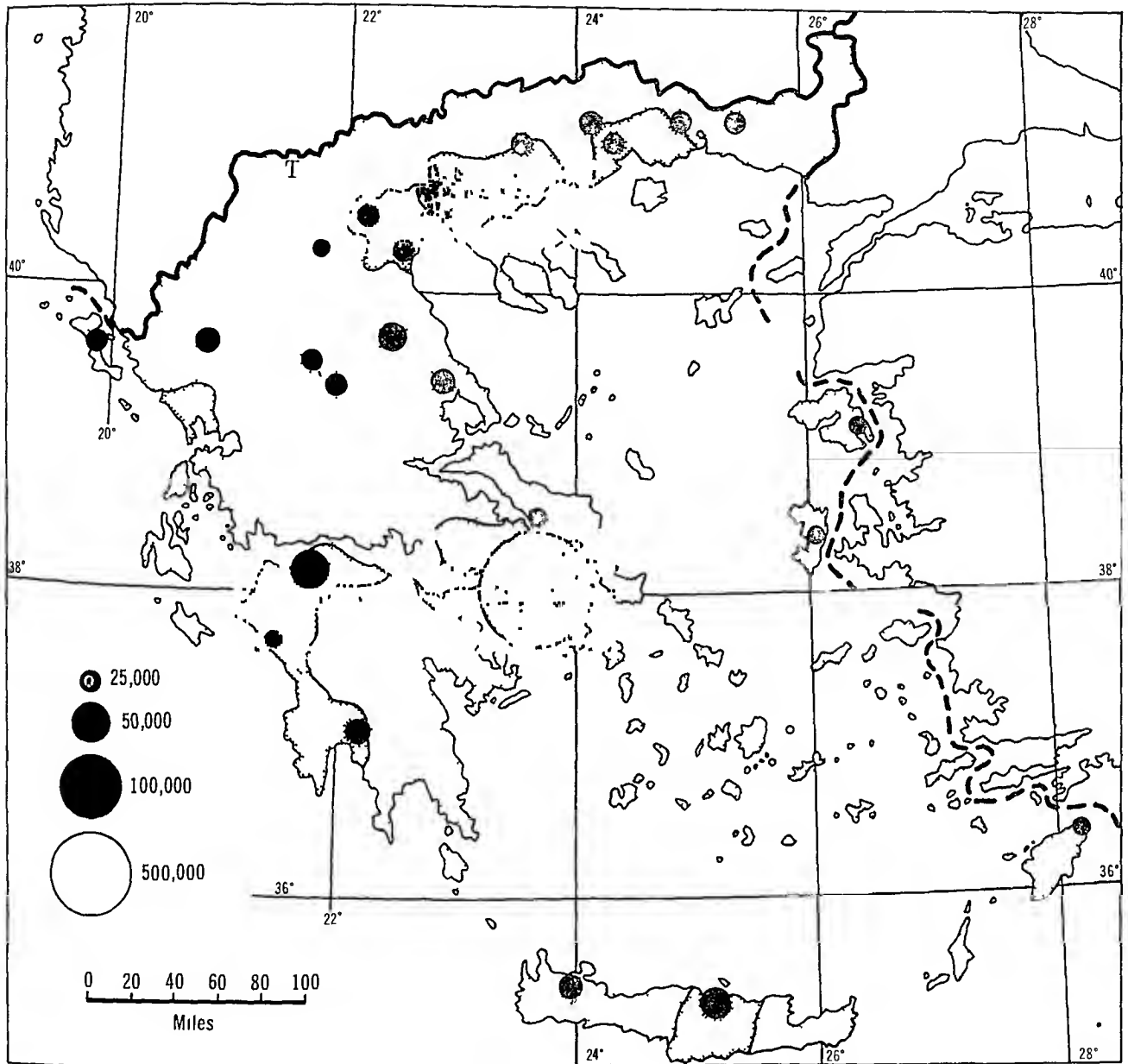


FIGURE 33-3. Greece: distribution of population and larger cities.

a routeway to the mid-Danubian region. The Yugoslavs have come to look upon the Vardar Valley as one of their outlets to the sea, and this in part has led them in the past to raise claims to the possession of territory in Macedonia and to the use of the port of Salonika (*Gr*: Thessalonike). The Yugoslavs have today a small "free zone" in the port.

The plains of Macedonia and Thrace are rather dry but, as elsewhere in eastern Greece, are liable to flooding in winter and spring. Parts of the low-lying land remain marshy and malarial throughout the year, but summers are generally dry, and agriculture is difficult without irrigation. The winters are not free from frost. The olive is, in consequence, rare, though the grape and



Greece is a mountainous country, with little agricultural land. Steep slopes, such as these on the slope of Mount Parnassos, are terraced for cultivation. (National Tourist Organization of Greece.)

course of the centuries of conflict between Greeks and Turks; most are small, squalid market towns. Rainfall is slight, though many of the rivers are liable to flood in winter. In summer irrigation is necessary in most places if agriculture is to be carried on.

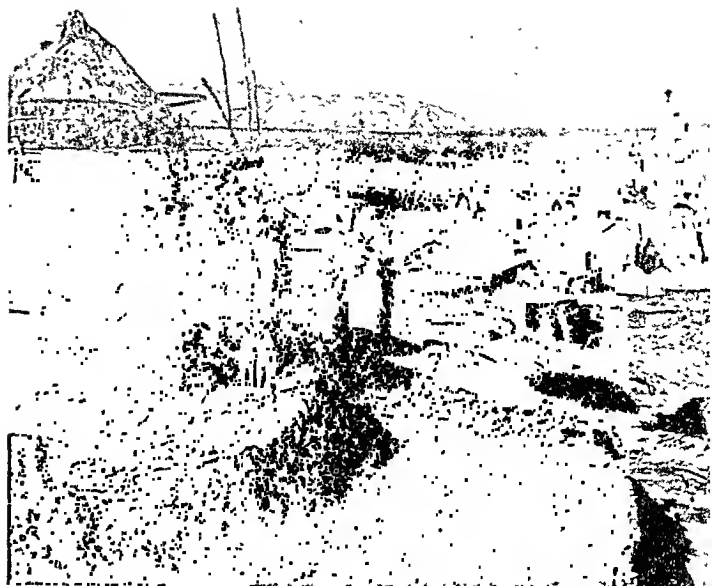
The eastern mountain range is broken by transverse valleys into a number of short segments, in which lie the mountains, famous in Greek mythology, of Olympus (*Gr*: Olimbos), Ossa, and Pelion. The most southerly extension of this range partially encloses the land-locked Gulf of Volos (*Gr*:

Pagasitikós Kólpos), on which lies the town of Volos. This was an area famous in the history of Greek navigation, for here was fitted out the legendary Argos, and many a ship was built of the timbers of nearby Pelion.

PELOPONNESUS (*Gr*: Pelopónnisos)

The most southerly region of Greece is separated from the mainland by the deep, narrow Gulf of Corinth (*Gr*: Korinthiakos Kolpos) and the Saronic Gulf (*Gr*: Saronikos Kolpos), between

The Isles of Greece have been renowned for their beauty since ancient times, though most are small, rocky, and of little agricultural value. The photograph shows los in the Cyclades group. Windmills are used in many parts, not only of Greece, but of southern Europe, for grinding the wheat. (National Tourist Organization of Greece.)



is mountainous, though its mountain ridge is broken into three distinct masses. The mountains drop steeply to the sea on the south. On the north is a narrow coastal plain. The climate is mild; the small rainfall occurs mainly in winter. The vegetation is *maquis*. The once-rich forests have now very largely been destroyed. Much of the lowland is under cultivation, though water is often short. The olive, as on so many other Greek islands, is the most important single crop and is followed by wheat and the grapevine. Olive oil and dried grapes are exported. Settlements are most numerous on the flatter northern coastal plain, and here are the few small towns, of which Iráklion (63,500) is the largest.

ECONOMIC DEVELOPMENT

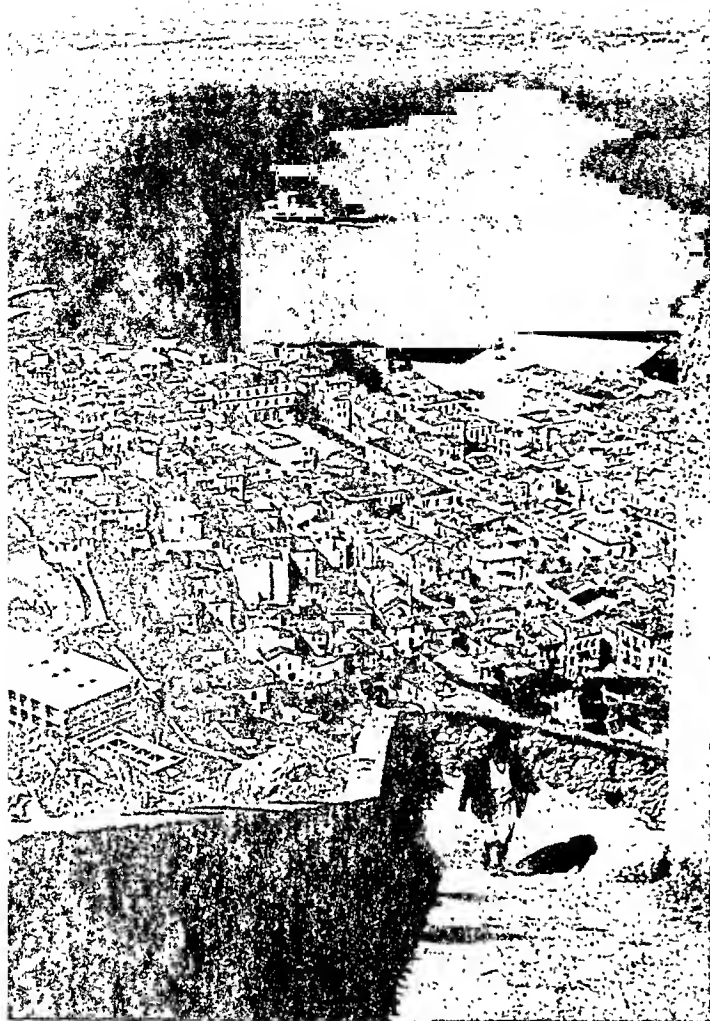
Greece, like the Balkan countries in general, is primarily an agricultural country, with 52 per cent of the population living or working on the land. The total population was about 8,390,000 in 1961. The number was greatly increased after 1923 by the settlement of 800,000 Greeks from Asia Minor, part of the exchange of population between Greece and Turkey. The assimilation of so large a group presented very serious difficulties. The majority were settled in Macedonia and Thrace, where low-lying land, capable of agricultural development, was relatively abundant. Here

they developed the cultivation of tobacco, which they had grown in Asia.

Agriculture, however, remains primitive. Holdings are generally small; rotation of crops is rarely practiced; manure is little used; and farm equipment is rudimentary in the extreme. Wheat is grown on the lower and flatter land, but the only other crops of importance are tobacco, olives, and the vine. Dried grapes, wine, and olive oil are among the more important exports of Greece. The soil is poor except on the alluvium of the coastal plains, and agricultural yields are small.

There are in Greece almost as many industrial concerns as there are men engaged in industry. Most are occupied in working up the local produce: wool, hair, tobacco, leather, skins, and hides. Greece has no fuel reserves, except small reserves of lignite, which are now being developed, and until recently there had been little development of hydroelectric power. Mineral resources are unimportant, though small quantities of lead, magnesite, emery, and bauxite are obtained. Only in the few large towns like Athens and Thessalonike are there industrial units large enough to be called factories, but in Macedonia the industrialization of a hitherto backward area is being pressed forward.

Transportation routes over much of the country consist of nothing better than rough tracks through the mountains, that can be used only by



Nauplion lies on the coast of the Peloponnesus, at the head of the Gulf of Nauplion, and very close to the ancient sites of Mycenae and Argos. Across the gulf, seen in the middle distance, are the mountains of the Peloponnesus. (*National Tourist Organization of Greece.*)

for which this wild region provides sustenance. Agriculture is no less primitive than farther north, and here too, wheat, the vine, and the olive are the staples. Small black grapes are dried and exported as currants. The small port of Patras (*Gr: Pátrai*, 95,000), on the shore of the Corinthian Gulf, handles most of the currant export. Towns are few and small and situated generally on hilltops. The classical cities of Argos and Sparta (*Gr: Sparte*) are no more than villages, and Corinth (*Gr: Korinthos*) itself is only a small town of about 10,000 inhabitants.

MACEDONIA AND THRACE

Macedonia and Thrace, the northeasterly region of Greece, embrace physical regions which are extensions of areas already met with in the Balkans. Their mutual boundary is far from clearly

defined, but Macedonia (*Gr: Makedonia*) lies to the west, and Thrace (*Gr: Thrake*) to the east. The region is one of rolling plains and low hills which increase in height northward until they merge into the mountains of Yugoslav Macedonia and the Rhodope Mountains of Bulgaria. It is of higher agricultural value than much of Greece. In places it is well settled and cultivated, but the political insecurity which has characterized this region for centuries and is even today far from eliminated has seriously hindered its economic development. After 1923, at the conclusion of the Greek-Turkish war, a large proportion of the Greeks evacuated from Asia Minor settled here. For a long time there was serious overpopulation, but recent industrial developments have absorbed most of the surplus.

Stretching northward from Macedonia is the Vardar Valley, providing, with the Serbian Morava,

Turkey

34

The Turkish republic is all that remains of an empire which once embraced the shores of the Black Sea, reached almost to Vienna in the northwest and to the Persian Gulf in the southeast, and included the Middle East and the coastal zone of North Africa. The revolt of the peoples of the Danube Basin and of the Balkan peninsula deprived the Turks of most of their European possessions. Their North African and Middle Eastern territories were occupied by European powers, and are now independent. After the First World War Turkey became a country peopled almost wholly by Turks, homogeneous and without serious minority problems. Turkey is divided into a small territory in Europe and a much larger territory in Asia. With the contraction of the Turkish Empire during the early years of the present century, its focus has shifted from cosmopolitan Istanbul (Constantinople) in European Turkey to narrow, nationalist Ankara in Asiatic.

While the Asiatic character of Turkey has thus been emphasized, the country has turned spiritually more and more to the West. Under the leadership of Mustapha Kemal, the "Ataturk," or Father of the Turks, from 1919 to his death in 1938, Turkey turned its back on its Moslem and oriental past. Islam ceased to be the official religion, and practices closely associated with

other fruits are grown. Tobacco has become important in recent years.

The coast is flat and in many parts fringed with saline marshes. Settlements avoid the coast, and there are only two ports of importance: Thessalonike and Kavalla. The latter is small, but Thessalonike (251,000), at the head of the Thermaic Gulf, (*Gr*: Thermaikos Kolpos), a few miles east of the deltaic mouth of the Vardar, is a port not only for northern Greece but also for much of the Balkan peninsula. Greek Macedonia is today undergoing a rapid industrial development, focused on Thessalonike. Recent developments include chemicals and fertilizers, cement and steel.

THE GREEK ISLANDS

The "Isles of Greece" have cast their romantic spell over poets and travelers for many generations. They are places of rare beauty. Most of the islands are high and rugged, lifting their crown of brown and olive green from the blue waters of the Aegean and bearing above their steep crags the small white villages of flat-roofed houses. The islands are of small agricultural value. Some are uninhabited; others are visited by goat-herds with their animals in summer. At best they produce grapes, olives, and a little grain, the trio upon which Mediterranean life has traditionally been based.

There is little in the Greek Islands today to indicate their great importance in classical times. These islands which were once in the forefront of civilization are now backward and sparsely peopled. Delos (*Gr*: Dhílos), once the center of the great Athenian League of the fifth century B.C., is now merely grazed by goats. It is common to explain this present degeneration at least in part in terms of the Turkish conquest. The long night of Turkish rule was deadening, but it is doubtful whether this alone brought the Greek Islands to their present condition. They had become of little significance long before the Turks came to Greece.

The Ionian Islands lie to the west of the Greek peninsula. They differ from the islands of the

Aegean in their higher rainfall, milder climate, and very much denser population, but culturally they belong with the rest. The Greek hero Odysseus came from the island of Ithaca (*Gr*: Ithakē), one of their number. There are seven in the group. All are mountainous. The olive groves provide the chief employment in the islands, though the vine is grown and its fruit is dried for export.

The Thracian Islands, in the northern Aegean, lie close to the shores of Thrace and Turkey. Thásos and Samothrace (*Gr*: Samothráki) are mountainous, forested, and sparsely populated. Lemnos (*Gr*: Limnos), farther to the south, is less mountainous than the others, and agriculture is of rather greater importance. On Lemnos is the fine sheltered harbor of Moudros (*Gr*: Mudros), now little used. To the south lie the Sporades, a group of small and rocky islets.

The "Circle of Islands," or Cyclades (*Gr*: Kyklades), is a group of over 20 small islands, some of them low but most high and mountainous. Sheep and goats are reared, sometimes in considerable numbers, but crop husbandry is not important. Farm holdings are small, and the peasantry is generally poor. Naxos is the largest and most populous island, though even here the population amounts only to about 20,000.

Close to the coast of Asia Minor, or Turkey, are the large islands of Lesbos (*Gr*: Lésvos), Khíos, and Sámos. To the south is a group of smaller islands, scarcely distinguishable from the Cyclades, which they adjoin, known as the "Dodecanese" (*Gr*: Dhodhekanísos). There were occupied by the Italians from 1912 until 1945, when they were transferred to Greece. Rhodes (*Gr*: Ródhos), with a population of 27,000 in its chief city, also called "Rhodes," is the largest and historically the most important, though Leros for a time acquired an importance as an Italian naval base. The islands are hilly, but their mild climate and moderate rainfall allow considerable areas to be cultivated. Olives, for which the climate is very well suited, are on some islands the most important crop.

Crete (*Gr*: Krete), the largest of the Greek Islands, is only 160 miles from west to east and less than 36 miles from north to south. The island

15 miles long and from $\frac{1}{3}$ to $1\frac{1}{2}$ miles across. Near its southern extremity a creek enters from the western side, the Golden Horn, between which and the Sea of Marmara is the town of Istanbul (formerly Constantinople, even earlier Byzantium).

The existence of the Straits is now one of the most important factors in the politics of the eastern Mediterranean. The Straits provide an outlet from the ports of southern Russia to the outer sea, and for a great deal more than a century Russia has aimed to control this waterway. Great Britain fought the Crimean War of 1854 to 1856 largely to check the Russian threat to the Mediterranean. After the defeat of Turkey during the First World War, the Straits were demilitarized. The ships of all nations were free to pass through as they wished, but in 1935, by the Treaty of

Montreux, Turkey was permitted once more to fortify the Straits. The Soviet Union has strongly objected to the power which Turkey thus possesses, but has never used, of closing the Straits to her shipping in time of peace.

Istanbul (1,467,000)¹ was established by the Emperor Constantine the Great early in the fourth century on the site of the ancient Greek city of Byzantium. It was strongly defended by the low cliffs, and across the neck of the peninsula was built the strongest line of defensive walls known in Europe at the time. The town survived the attacks of barbarian invaders and became the capital of the eastern, or Byzantine, empire. In the

¹ The population is given for all cities of over 50,000. All cities of this size are named in the text.

Istanbul spreads over a low plateau which on most sides rises steeply from the sea. The Golden Horn, seen in the foreground, is a branch of the Bosphorus which extends west from the Bosphorus, and has always constituted the chief port of the city. In the distance are the domes and minarets of the mosque of Suleiman. (Turkish Information Office.)



mules. The only really important railway runs from Thessalonike along the east coast to Athens and then continues to Patrai, with branches eastward into Thrace and into the Peloponnesus. Most of Greece is untouched by railway development.

The statistics given in Chap. 4 show that Greece is as poor and, in relation to its small extent of agricultural land, as crowded as any country in southeastern Europe. Reference has already been made to the contrast between its present poverty and the glory that once belonged to it. Many a European liberal, aiding the Greeks in their struggle against the Turks in the nineteenth century, discovered with a shock how much the nation of Pericles had degenerated in 2,000 years. The problem of Greece today hinges in part on its political instability, in part on the nature of its economy. Democratic forms of government have not worked well. The nation's resources have been frittered away in political squabbles or squandered through political corruption.

Climate and terrain combine to restrict the agricultural output of Greece. Self-sufficiency in foodstuffs is unattainable, and Greece has lived by exporting specialties, such as currants, tobacco, and olive oil. Given the facilities to export these and to import grain and other foods, the Greeks can live and, by the standards of southeastern Europe, live well. When, as during the period of German occupation between 1941 and 1945, these opportunities are denied, the Greeks starve, for

TABLE 33-1. Chief Elements in Greece's Foreign Trade, 1962 (In Millions of Drachmae)

Item	Imports	Exports
Food	2,366.39	7,946.68
Beverages and tobacco	14.47	2,254.12
Crude materials, inedible	2,014.99	2,232.25
Mineral fuels	1,534.86	17.60
Animal and vegetable oils and fats	89.66	177.40
Chemicals	2,094.72	184.90
Manufactured goods	4,328.19	421.20
Machinery and transport equipment	7,942.90	147.06
Miscellaneous manufactured articles	648.37	76.50
Miscellaneous transactions and commodities	3.35	0.00
Total	21,037.91	7,457.70

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1963.

their own products scarcely make up a balanced diet.

Greece belongs to the West. The Western political tradition derives in part from the practice and precept of the Greeks of classical times. Greece's markets are in the West; her merchant fleet, in which, like Norway, Greece employs some of her surplus manpower, carries coal and cotton and iron ore from the nations of western Europe.

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The Bosphorus is a narrow waterway, which separates Europe from Asia. It is lined with villages. In the foreground are the walls and towers of the Rumeli Hissar, or "castle of the Romans," built by the Turks in the fifteenth century to protect the approaches to Constantinople (now Istanbul). In the distance are the hills of Asia Minor. (Turkish Information Office.)

amid the sands of the steppe. The rainfall of the Anatolian Plateau is small. Few places have more than 15 inches a year, and the variation from year to year is great. The rainfall occurs mainly in the autumn and winter months, and summers are almost rainless. The temperature range, both daily and yearly, is considerable. Over much of the region the January mean is below freezing point, and toward the east extreme temperatures may be below zero. In summer temperatures are high, though moderated somewhat by the altitude of the plateau.

The natural vegetation of the plateau is grassland. On rising ground this gives place to scrub

and to a thin coniferous woodland. Along the streams may be willows and poplars, and as the rainfall diminishes, the grassland gives way to a thin and discontinuous cover of drought-resisting plants. The steppe of Anatolia is more suited to pastoral than to crop farming, though wheat, barley, and oats are grown. A large area is irrigated, but the supply of water is inadequate for any great extension of crop farming. Large flocks of sheep and goats are reared, both for their wool and hair and for their milk and meat. The sheep are commonly of the fat-tailed variety. The Angora goat is kept for the mohair which it yields.

Population is sparse, and village settlements

it were discontinued. Women no more went veiled, and men ceased to wear the fez. Attempts were made to reduce the illiteracy of the people, to improve their methods of agriculture, and to introduce Western industry. These were attended with a considerable measure of success. The productivity of Turkey has increased steadily during the past 25 years, and as its national income increased, so the products of agriculture have accounted for a diminishing proportion of the total.

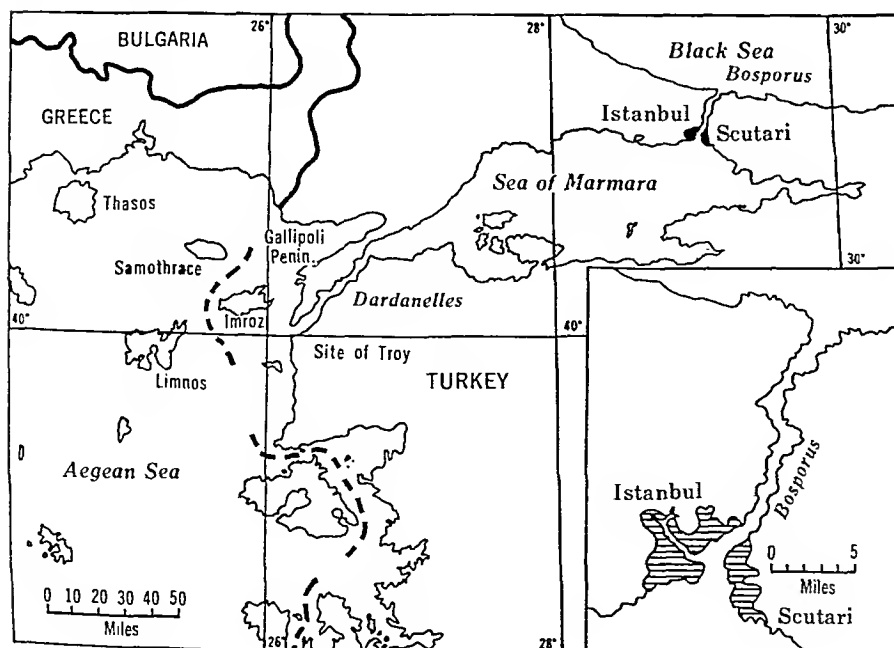
EUROPEAN TURKEY AND THE STRAITS

European Turkey is small in area and irregular in shape. From east to west it is at most 150 miles. It comprises two ranges of hills and the intervening valley of the Ergene, a tributary of the Maritsa (*T*: Meriç). The rainfall is low, generally less than 20 inches, except on the hills. The Istranca Mountains are forested, but elsewhere the land is covered by low-growing scrub or grass. The Ergene Basin is almost treeless. The peasants, who live in large villages, grow crops of corn on the more favorable land and graze flocks of sheep

and goats over the steppe. The largest town other than Istanbul is Edirne (formerly Adrianople), a closely built town lying on the eastern bank of the Tundzha near its junction with the Maritsa. It lay on the route from Istanbul up the Maritsa Valley into the Balkans and was for long the commercial center of eastern Thrace and the Maritsa Valley. The present boundary, which here follows the Maritsa Valley, has reduced the city's economic significance but added to its military importance.

The Turkish Straits are in two parts, separated by the Sea of Marmara. They follow the course of a drowned river which formerly carried the discharge of the Black Sea into the Mediterranean. Both are narrow and easily controlled from the shores. Along their margins are the castles by which the "Narrows" were controlled during the Middle Ages and later, and also the less-visible defenses of the twentieth century. The more southwesterly or outer strait is the Dardanelles, a waterway 40 miles long and from 1 to 5 miles in width. On its northwestern side is the narrow, hilly Gallipoli peninsula. The inner strait, the Bosphorus, is

FIGURE 34-1. The Turkish Straits and the Sea of Marmara. Inset: The Bosphorus and the site of Istanbul.



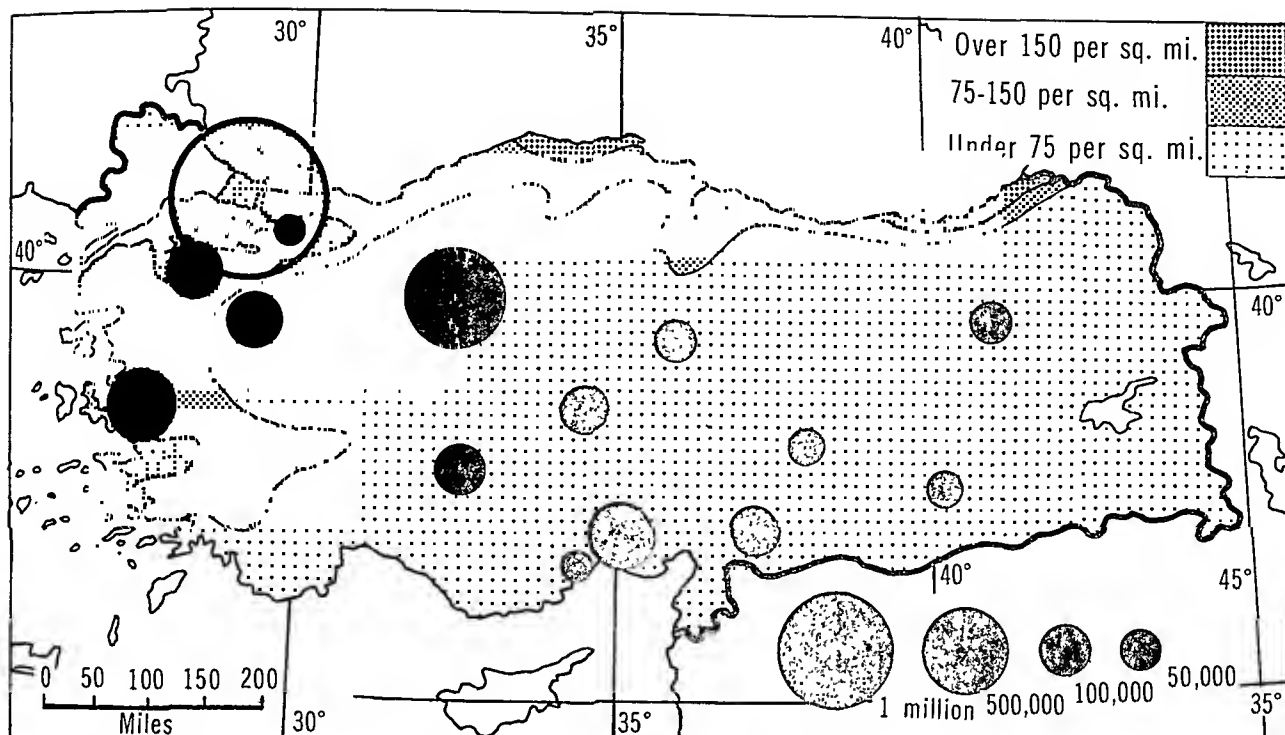


FIGURE 34-3. Turkey: the distribution of population and larger cities.

Wheat and barley are grown, with corn and such industrial crops as cotton and tobacco. Fruit crops are also of great importance. Here are raised the figs and grapes which are dried and preserved for export, and olives and other Mediterranean fruits are grown.

The population is denser than in other parts of Turkey. There are, however, probably fewer towns than in classical times, and the sites of some ancient cities are not now known with certainty, so great was the destruction wrought here during the Middle Ages and early modern times. İzmir (formerly Smyrna, 361,000) is the largest of these towns, lying at the head of a deep gulf, which serves it as a natural harbor. Close by is a small area of fertile agricultural lowland, and to the east a valley leads up to the plateau. İzmir serves as the port for much of western Anatolia. It was long a center of Greek settlement and after the First World War suffered severely both from the fire which destroyed much of the town and from the expulsion of the commercial-minded Greek population.

These Greeks had lived along the Aegean coast since ancient times. They made the "Turkish" carpets and prepared the "Turkish" tobacco. But the new Turkey of the 1920s was unwilling to tolerate the continued existence of the Greek minority, which was "exchanged" for the very much smaller Turkish minority in Greece. Economically Turkey lost a great deal with the expulsion of the industrious Greek community of about 800,000 but may have gained equally by achieving a greater degree of national unity. Bursa (154,000), lying on the margin of the small plain to the south of the Sea of Marmara, is second in size to Smyrna.

Very few of the islands which lie close to the Anatolian coast actually form part of Turkey. Certain very small inshore islands are Turkish, but all the larger islands with the exception of Imroz are Greek. This derives largely from the fact that they have been settled, many of them since ancient times, by the Greeks, who were active in commerce and regarded the sea as a normal medium of trade.

The Anatolian Plateau is bounded on the south,

fourteenth and fifteenth centuries this empire was conquered by the Turkish invaders from the East, and in 1453 the city of Byzantium, deemed impregnable, was taken by Sultan Mohammed II and remained until 1919 the capital of the Turkish Empire. Its site is naturally strong and commands movement through the Bosphorus. The town itself is a maze of narrow, twisting streets. A number of the early Christian churches, with the addition of minarets, now serve as Moslem mosques. Istanbul has largely lost its governmental functions, but remains a market and business city, an important port in the foreign trade of Turkey, and a city of growing industrial importance.

ASIATIC TURKEY

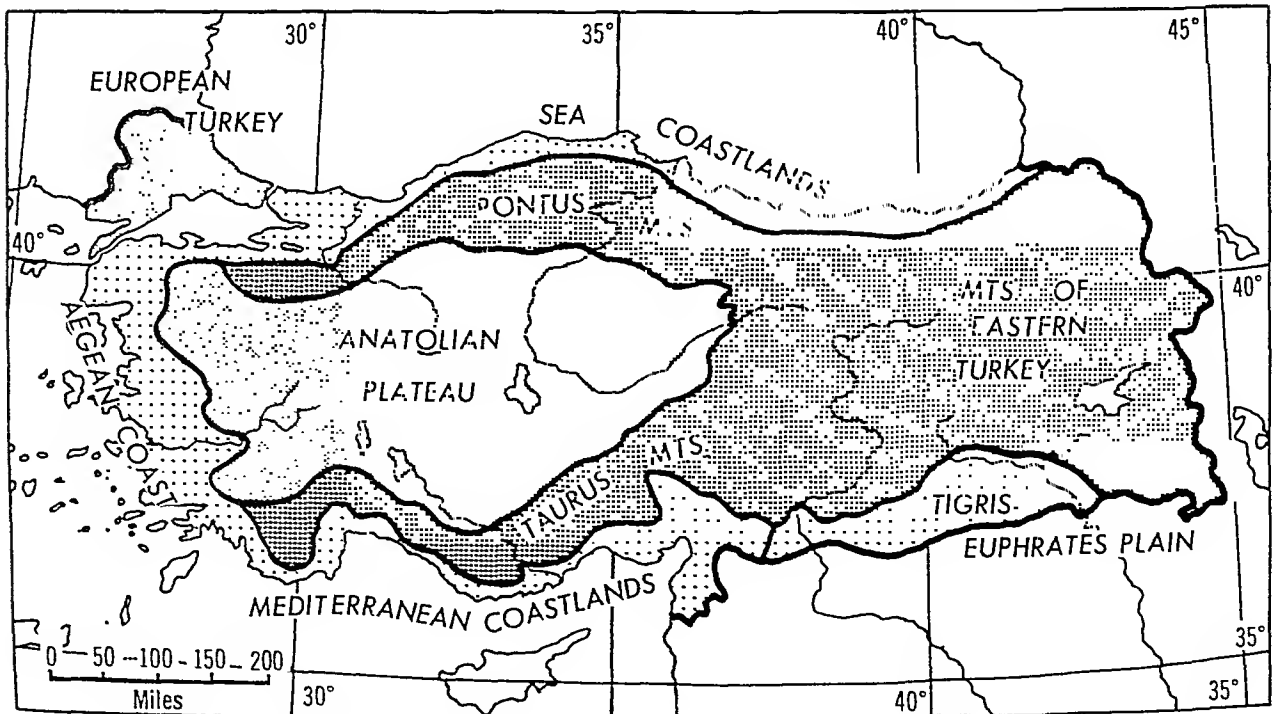
Asiatic Turkey is a plateau, ranging in height from 1,500 to 5,000 feet above sea level. On north and south it is bounded by mountain ranges, the Pontic (*T: Kuzey Anadolu Daglari*) and Taurus (*T: Toros Daglari*). To the east these converge in the tangled mountainous region of eastern Turkey. Toward

the west the plateau becomes more irregular as it is trenched by the deep valleys of the short rivers which flow down to the Mediterranean.

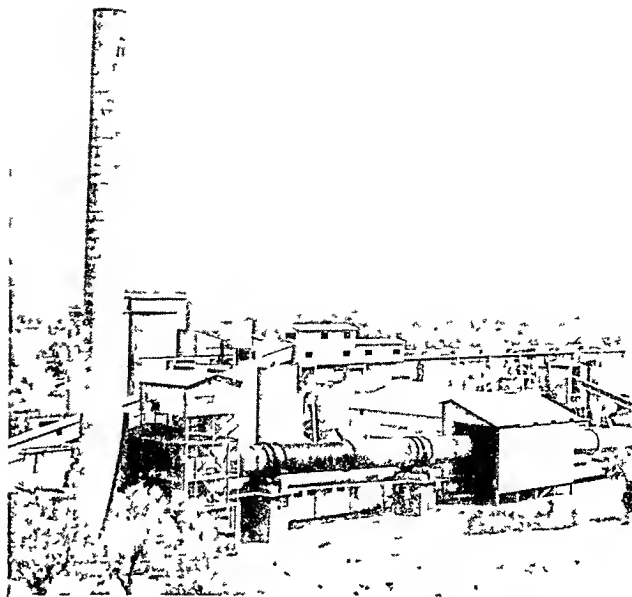
The central plateau is the most distinctive region of Turkey. It is a high, rolling plateau, built mainly of hard rocks but embracing many softer and more recent beds. The region has been subjected to earth movements, which have produced a great number of fault-bounded depressions, and to vulcanicity. Volcanic deposits are numerous and widespread. In places the plugs of ancient volcanoes remain as steep, isolated hills. Lava flows and volcanic ash mantle large areas, the former producing a bare and undulating landscape, the latter soft and easily eroded into a kind of "badland."

The plateau is in part drained to the Black Sea. The Sakarya and Kizil Irmak both pursue intricate courses over the plateau and cross the northern ranges in deep gorges. Much of the plateau, however, has no direct outlet to the sea. Its short seasonal rivers discharge into lakes from which the water evaporates, or they disappear

FIGURE 34-2. Turkey: landform regions.



Cement is essential to modern industrial development, and the expansion of cement production is one of the foremost tasks of developing countries. The photograph shows a cementworks, with modern rotary kiln, in operation near Smyrna. (Turkish Information Office.)



close dependence of state and society upon the strict letter of Moslem law was broken, and traditions and practices which had hindered economic progress began slowly to be abandoned. Western dress made its appearance and with it a Western attitude to agriculture and industry.

Less progress has been made in agricultural than in industrial development. The Turks have, however, set up agricultural research and plant- and animal-breeding stations. In places, particularly in some of the rich lowland plains of the south and west, modern, mechanized farming practices have been introduced, and everywhere attempts have been made to break down wasteful traditional methods and to introduce to a primitive and conservative peasantry the advantages of crop rotation, artificial fertilizers, and commercial agriculture. Agriculture employs about 72 per cent of the population of about 28,000,000. Despite the progress that has been made locally, many continue to practice their traditional methods. The cultivation of cereal crops has been described as "entirely primitive: the peasant prepares his land with the aid of his prehistoric needle plough and half-starved oxen, and sows a very mixed and degenerate seed, almost invariably too late if only because his animals are weak from lack of fodder. In the end he produces, at the cost of infinite labour, probably less than half the crop he should be producing if he set about it in good time, given good seed and lusty animals to draw the plough

at his disposal, such as it is."¹ There have been changes since this was written, but not enough to alter the general picture.

Turkish industrial development has been carefully planned. Under the rule of the sultans, manufacturing industries were limited almost entirely to textiles, carpets, pottery, and woodwork, carried on generally on a domestic basis. The government of Ataturk set out to establish factories on modern lines. Mills producing cotton and woolen cloth, silks, carpets, and rugs have been established in many of the towns of Anatolia. Turkey is now virtually self-sufficing in textiles and has a small export of silks and carpets.

The development of heavy industries has been restricted by the comparative lack of raw materials. Turkish coal resources are practically confined to a field lying close to the Black Sea coast between Ereğli and Zonguldak (54,000). Its output is about 4 million tons a year. Iron-ore reserves are small and located in the remote eastern mountains. Coking ovens have been established at Zonguldak, and blast furnaces and steelworks erected at Karabük, some 40 miles inland from the Black Sea coast. This site, so far removed from the source of ore, was chosen when it was anticipated that all the ore used would be imported. The Karabük ironworks are small, pro-

¹ *Overseas Economic Surveys: Turkey*, London, 1947.

are few and large. In the better agricultural areas are small towns, such as Eskisehir (153,000), Konya (120,000), and Kayseri (103,000), market and industrial centers where carpets and fabrics are woven from the wool and mohair produced locally. Ankara (formerly Angora, 650,000) is the largest town of the plateau and in 1922 became the capital of the Turkish republic. The site had long been occupied, and the modern town is overlooked by the remains of a medieval fortress. Ankara had at first little to recommend it as a capital, but it is, like Madrid, centrally placed. It is uncompromisingly Turkish, and its choice emphasizes the new and nationalistic direction given to Turkish development after the territorial losses of the First World War.

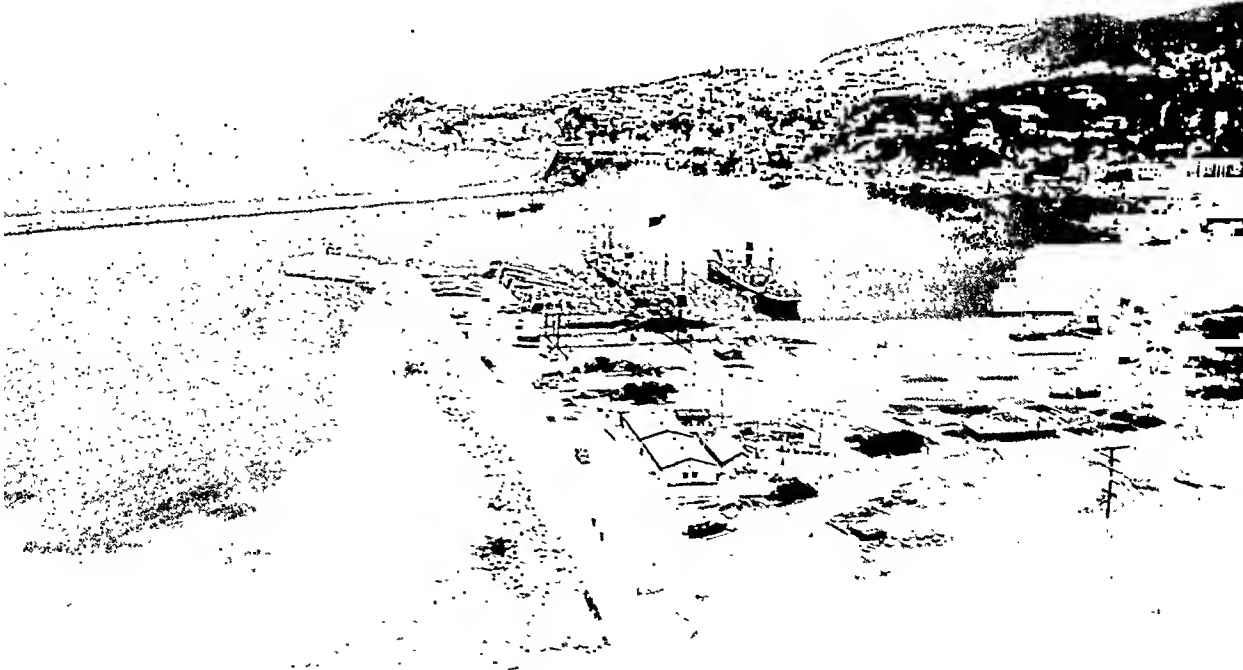
The Anatolian Plateau is bounded on the north by the broken range of the Pontic Mountains, which increase in height eastward and as they approach the Soviet boundary attain heights of over 10,000 feet. The mountains are a barrier between the plateau and the northern coast. In places they drop steeply to the sea, almost com-

pletely preventing movement along the narrow, broken coastal plain. Lowland is restricted to a number of small tracts at the heads of the bays and at the mouths of the rivers. Only two railroads cross the mountains to reach, respectively, the ports of Zonguldak and Samsun.

The Anatolian Plateau slopes downward gently toward the west, scarred along its western edge by valleys opening westward toward the Aegean. The coast, drowned by a rise of sea level, is irregular, with many deep inlets, promontories and offshore islands.

This region has mild winters, like those of southern Greece, and hot summers. Rainfall is much greater than on the plateau, varying from 20 inches in the lowlands to over 40 inches in the hills. It occurs almost wholly between the months of October and March. Summers are dry and hot. Vegetation is richer than on the plateau. Much is forested with Mediterranean evergreens, but drier areas and those where the forest has been destroyed are generally covered with scrub. The flat alluvial land is cultivated.

Zonguldak, the center of a small coalfield, is one of the chief Black Sea ports of Turkey. It is only a shallow bay, protected by the moles shown in this photograph. Coal is among the goods handled. (Turkish Information Office.)



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as on the north, by a range of mountains which serve very effectively to cut it off from the sea. The mountains reach heights of over 10,000 feet. They comprise several overlapping ranges, the whole being arranged in a great double bend which begins at the coast, bends inland to enclose the plain of Antalya, reapproaches the coast near Cape Anamur, and then trends northeastward to enclose the Anatolian Plateau on its eastern side. The Taurus Mountains experience a considerable rainfall on west-facing slopes, but the region as a whole is markedly drier than the Pontic Mountains, and the rainfall is more clearly concentrated in the winter months. Temperatures are a little warmer than in the more northerly mountains. The ranges are very largely forested; Mediterranean evergreens and temperate-zone deciduous trees grow well. Northward the forest cover becomes thinner and drier as the Taurus Mountains pass into the Anatolian steppe. The rivers which drain the mountains to the Mediterranean flow in deep, narrow gorges which are in practice impracticable for traffic of all kinds. Only one railway succeeds in following one of these valleys, that from the Adana Plain to the plateau.

In general the mountains keep close to the coast, leaving only small and discontinuous areas of plain, but in two places the mountains recede, forming extensive areas of lowland. The more westerly of these is the Antalya Plain, in which lies the small town of Antalya. The larger of the two is the Cilician or Adana Plain, enclosed between the Taurus Mountains and the Amanus Mountains of northern Syria. Both this and the Antalya Plain are low, alluvial, and very fertile. Rainfall is generally adequate, though irrigation is practiced in some places. Subtropical as well as temperate crops grow well, especially if irrigation water is available. Population, however, is not dense, and quite good land either goes unused or is developed less fully than is possible. This situation is due, more than to any other factor, to the exposure of the coast to piratical raiders and to the depopulation that has resulted from centuries of war and political disturbance. The city of Adana (232,000) lies in the middle of this plain.

Adjoining the Adana Plain is the smaller

province of Hatay, which was ceded to Turkey in 1939 from French-occupied Syria. Hatay is fertile and potentially productive, but its chief importance lies in the port of Alexandretta (*T: Iskenderon*, 62,000) which handles much of the trade of southeastern Turkey. It is now the only good port of the south coast which has a railway communication with the interior of Turkey. The famous Cilician Gates provided a difficult but practicable route into Turkey and are followed by the railroad.

EASTERN TURKEY

This is a sparsely populated region of high mountain, of enclosed basin, and of steppe and desert. The mountains of Armenia in the northeast have a climate of extremes. High in these mountains is the city of Erzurum (90,000), situated in one of the tributary valleys of the Euphrates. South of the mountains are the dry plains of the Tigris and Euphrates Valleys. This is a region of very hot summers and cold winters. The rainfall is small and the plains are covered with coarse grass, fresh and green during the winter but parched and burned during the summer. This passes upward into the mountain areas of scrub and forest.

Population is sparse, much of it still semi-nomadic, and agriculture is unimportant. A number of towns, important if not large, lie close to the borders of the mountains, serving in part as market centers at the junction of hill and plain, in part as caravan stations on the ancient routeway which followed the Euphrates Valley up to Mosul in Iraq, or to Diyarbakir (80,000) and westward to the Mediterranean. The largest of these is Gaziantep (124,000). This route is now followed by the railway, the last section to be built of the Baghdad Railway which was planned by the Germans in the nineteenth century.

ECONOMIC DEVELOPMENT

In the years following the First World War Turkey underwent a social and economic revolution only a degree less profound than that which was taking place in Russia. The Sultan was expelled, the

part seven

The Soviet Union

ducing only about 300,000 tons a year, but supply a large proportion of the total crude-steel goods required in Turkey. Engineering and steelfinishing industries are not seriously developed, and the chemical industry remains very small. Large developments in the fields of power generation and industrial development are projected.

The state of roads and railways is in keeping with the backward economic development of the country. The Pontic and Taurus Mountains place very serious barriers between Anatolia, where most of the present industrial development is taking place, and the coasts. The railway network is inadequate, and many towns of considerable size have no railway communications at all. There is a much better network of roads, but many of these are unsurfaced and unsuitable for fast traffic.

The foreign trade of Turkey is comparatively small. Exports are dominated by minerals and vegetable produce. Imports are, conversely, made up mainly of manufactured goods, machinery, chemicals, and fuels. It is unlikely that Turkey's

industrial development will be sufficient in the near future to alter radically this pattern of export of raw materials and import of manufactured goods.

We must not, however, underrate the significance of Turkey's revolution. An Oriental state, governed by an autocratic and inefficient sultan, unindustrialized, with a backward agriculture, has transformed itself into a unified state with an improving agriculture and a developing industry. The new Turkey has developed without enemies, unless Soviet Russia be counted one. She has borne no animosity to the Greeks or to France and Great Britain, which did much to carve up her former empire. She forms politically, as well as geographically, a bridge between Europe and Asia. But she cannot avoid the consequences of her situation between the Black Sea and the Mediterranean. Her position forces her to become either the vassal or the opponent of Russia. Backed by the strength in the Mediterranean of Great Britain and supported by military help from the United States, she is determined not to become a vassal. The United States, in the now-famous "Truman Doctrine," declared its intention of supporting both Turkey and Greece and of helping them to preserve their independence against aggression. Turkey has further received Marshall Aid, and is a member of the North Atlantic Treaty Organization. Turkey may well need in the years to come all the tenacity of purpose that she has shown in recent times.

TABLE 34-1. Chief Elements in Turkey's Foreign Trade, 1962 (In Millions of Liras)

Item	Imports	Exports
Food	517.05	1,286.59
Beverages and tobacco	1.30	867.27
Crude materials, inedible	303.52	972.44
Mineral fuels	693.71	55.45
Animal and vegetable oils and fats	194.82	130.01
Chemicals	535.39	15.39
Manufactured goods	1,086.29	100.15
Machinery and transport equipment	2,139.44	1.15
Miscellaneous manufactured articles	128.33	2.23
Miscellaneous transactions and commodities	0.04	0.00
Total	5,599.90	3,430.68

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1961.

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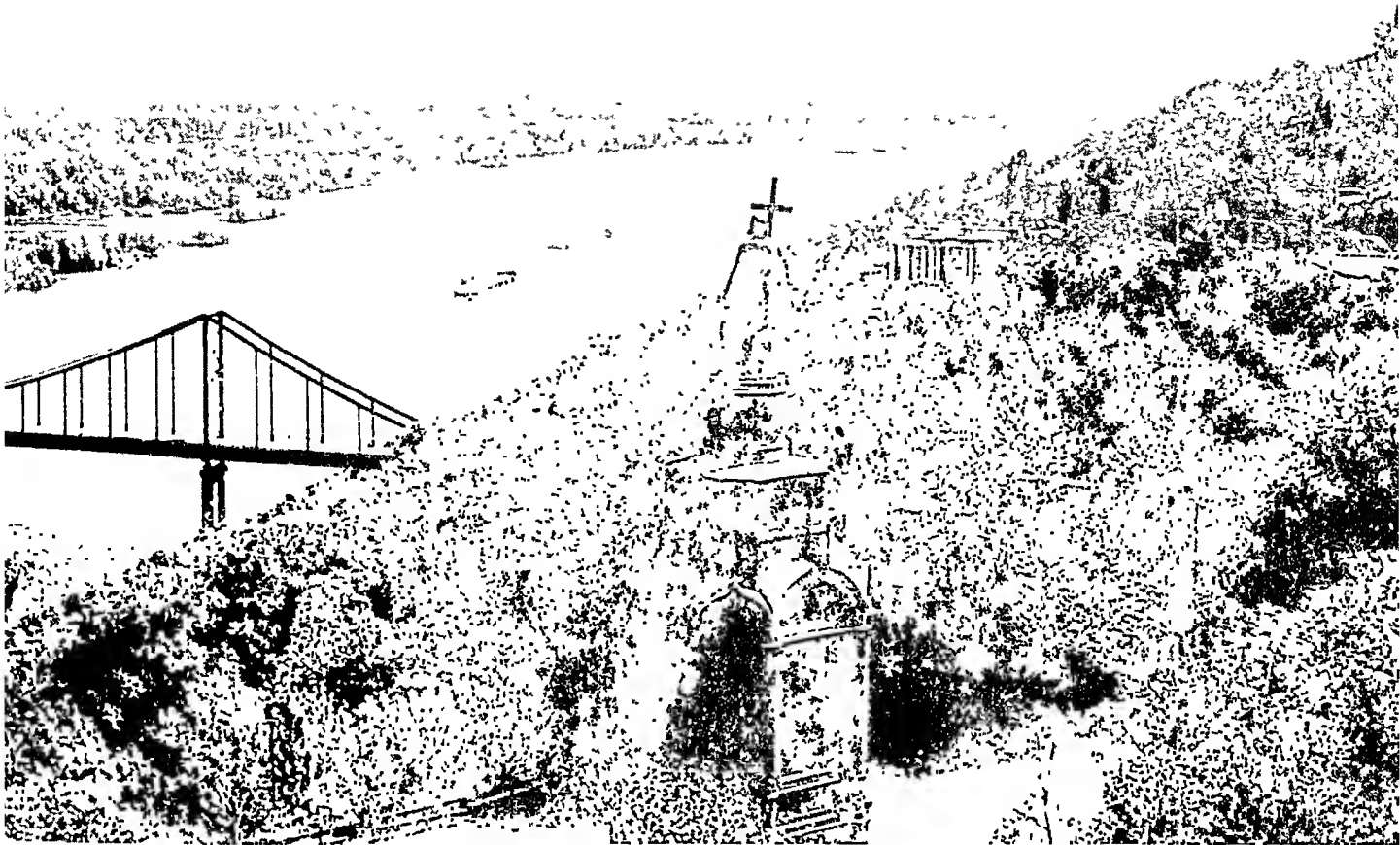
The U.S.S.R.

35

It was formerly a convention of geographers that the eastern boundary of Europe was formed by the Ural Mountains, that European Russia belonged to the West, and that Siberia was essentially an Asiatic territory. For many centuries this distinction between the Russian lands lying to the west and east of the Ural Mountains was reflected in their economic development. Such towns and industries as Tsarist Russia possessed lay for the greater part in Europe, while the Asiatic lands were sparsely populated, backward, and undeveloped. With the completion of the Trans-Siberian Railroad around the turn of the century, and particularly since the initiation of the First Five-Year Plan in 1928, the Russians have carried forward the process of welding the two conventional divisions of Russia into a single planned and integrated whole. This book is concerned with Europe. It cannot, however, stop at the low ridge of rounded hills that formed its traditional frontier, though discussion of lands lying farther to the east can be only brief.

Russia¹ is a vast country. Its area of 8,708,000 square miles is almost as great as that of the whole of North America. It extends nearly 6,000 miles

¹ The term "Russia" is used when the geographical region is designated, or when reference is made to the Tsarist State. The term "Soviet Union" or "U.S.S.R." is used whenever the reference is specifically to the present state in its political connotation.



A view of the busy Dnepr River from Kiev, the capital of the Ukrainian Republic. Note the high right bank of the river upon which the city is situated. In the foreground is the statue of Prince Vladimir the Holy who introduced Christianity to Kievan Rus in the tenth century. (G. J. Demko.)



The Kremlin of Moscow. This most famous of all Russian kremlins was the core around which the city developed. The churches and palaces within the walls accrued with each successive Russian ruler. (G. J. Demko.)

that year the First Five-Year Plan was launched.¹ The first plan was succeeded by a second in 1933, and this in turn by a third in 1938, which was interrupted in 1941 by World War II. The sequence of plans was resumed after World War II, and is still continuing. Each of these plans has been a program of creative work with the primary emphasis placed upon development of heavy industry and the military.

The agriculture and industry of Russia today are in large measure the product of the years since 1928. Under the Tsars Russia was poor and backward. Agriculture was primitive and, over much of the country, self-sufficing; manufacturing industries had been established only in a few centers in European Russia, and these were generally backward in their techniques and inefficient in their methods. However, under Soviet rule

ponderous Russia was hurled into the industrial era. Factories were built, railroads laid down, mines sunk and developed, and grasslands brought under cultivation. Each of the five-year plans could be carried through only by immense labor and self-sacrifice on the part of the Russian people. Goods of foreign origin—dynamos and turbines, steel mills and machine tools—which the Russians could not yet produce for themselves had to be purchased. At the same time the Russians had to purchase knowledge and skill. Technicians from the West were brought in and were paid for their services in teaching the Russian people. Vast supplies of labor were needed for the construction work going on in Russia. The imports, both material and technical, had to be paid for. This necessitated further exertions on the part of the Russian people to produce goods for export.

This planned development of the resources of a vast country has been highly praised and recommended for the imitation of other peoples. It has profoundly changed the face of Russia and, on

¹ The First Five-Year Plan was announced in 1929, but dated from 1928. Thus the plan officially included the years from 1928 through 1932.

FIGURE. 35-1. The Union of Soviet Socialist Republics.



from its most easterly point, East Cape opposite the shore of Alaska, to Baltiysk on the Baltic Sea, and nearly 3,000 miles from its most northerly, Cape Chelyuskin far within the Arctic Circle, to the town of Kushka on the Afghan border of the Turkmen Republic. In terms of land area, the Soviet Union is the largest country in the world, and its boundaries encompass one-sixth of the inhabited earth. Much of it is arctic tundra, forest, mountain, and desert. Although the Soviet Union is one of the least densely populated countries of the world today, its resources are among the greatest. Only recently, however, have these resources been developed and utilized.

The Historical Development of the Russian State

The first significant attempt at political unification among the eastern Slavs resulted in the creation of the principality of Kiev in the mid-ninth century. Although much of the history of "Kievan Rus" is shrouded in legend, it is known that it developed into a relatively important mercantile state. Kiev served as a collection center for the products of a surrounding agricultural region, as well as for the forest products of the Slavic area to the north. Commercial ties of the principality were aligned on a north-south axis, with the city of Novgorod on the shores of Lake Ilmen providing a northern outlet. Connections with Novgorod and ports on the Baltic were established from the northern Dnepr to such rivers as the Western Dvina and the Volkhov via short overland portages. On the south, trade moved down the Dnepr to the Black Sea and on to Constantinople.

The city of Kiev was founded on the high right bank of the Dnepr River where it emerges from the forest and moves across the vast steppe of southern Russia. The steppe was a natural corridor for the marauding Khazars, Pechenegs, and Polovtsi who successively harassed Kiev. By the middle of the twelfth century incursions of such mounted barbarians, as well as internal strife,

had greatly weakened the principality. The period of Kievan influence ended with the fall of the city to the Golden Horde in 1240.

While most of Russia lay under the Tatar yoke, there arose a number of Slavic principalities in the less-congenial but more secure forest areas. Most important of these were Moscow, Suzdal, Vladimir, Tver, and Rostov. This core area from which Russia developed was a region of low forested hills where the Dnepr, Oka, Volga, Dvina, and Don Rivers take their rise. These rivers provided important connections to other parts of the country. Although the soils were poorer and the climate harsher than in the steppe to the south, the curtain of forest allowed some measure of protection from the fierce nomadic Tatars.

By the fourteenth century, Moscow had emerged as the dominant power and served as the core from which the Russian State expanded. Northward its traders and trappers pressed toward the Arctic Ocean, there to meet on the shores of the White Sea the merchants of England and the Netherlands. Toward the west the branches of the Baltic Sea invited the Russians to share more directly in trade with the West.

The early Muscovite State, contained on the west by the Lithuanians, Poles, and Swedes, extended its influence first toward the east. The waning power of the Tatars was broken during the reigns of Ivan III and Ivan IV, laying open to the Russians the forest, steppe, and mountains of Siberia. The inhabitants of this huge region were few and backward, as impotent to halt the Russian advance as were the North American Indians that of the white settlers. Fur trappers, miners, and Cossacks entered and then crossed the Ural Mountains. Before the end of the sixteenth century, bands of Cossacks, under the banner of the Tsar, reached the Pacific Ocean and Russian influence penetrated as far east as Alaska and California. Although permanent settlements in Siberia were few and small, the whole region became silently and without opposition part of the Russian empire. For nearly three centuries Russia stood aloof from Europe, preoccupied with the Asiatic portion of its realm. This, in part, contributed to its reputation as an Asiatic country.

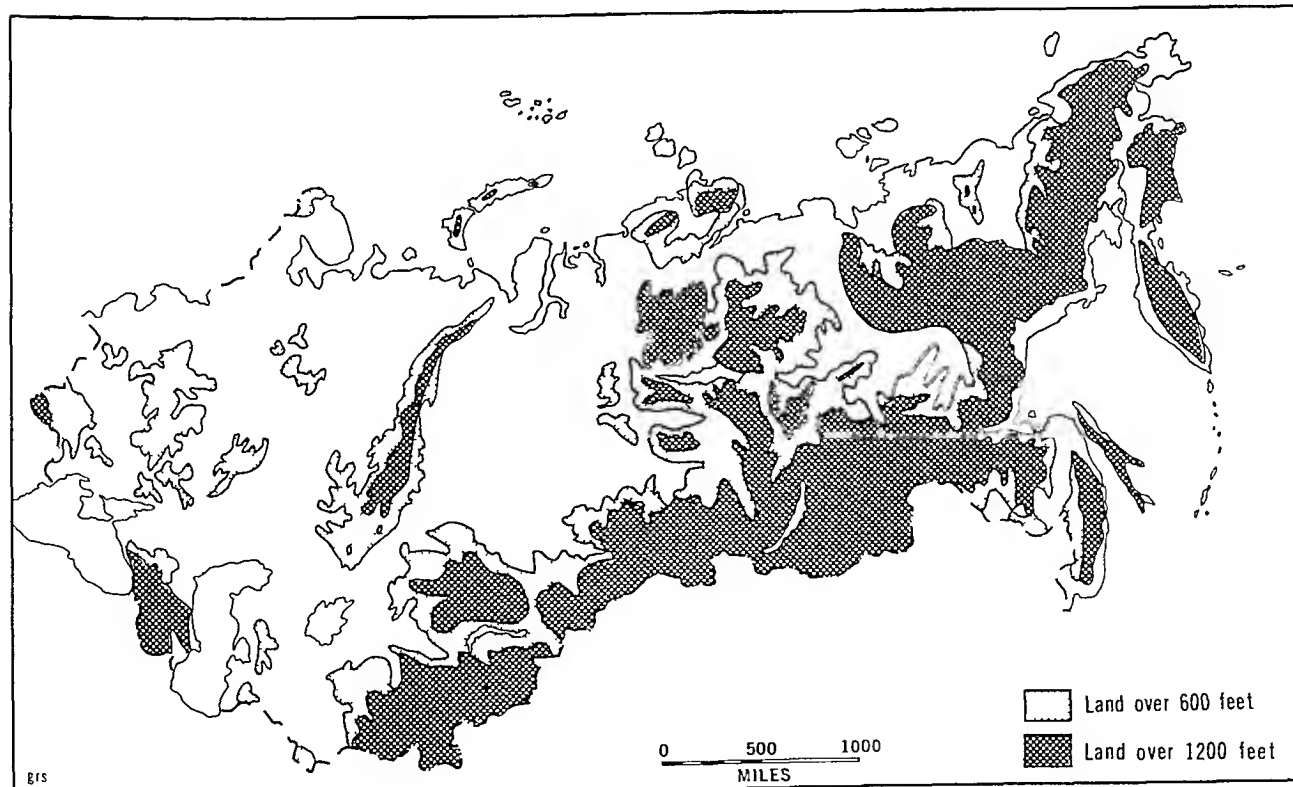
north, the Yenesei River on the east, and the mountain rim of Central Asia on the south (Fig. 35-3). The great rivers of European Russia rise in hills which do not exceed 1,200 feet above the level of the sea. The Ural Mountains, conspicuous on the relief map, rarely rise above 3,000 feet. This great plain is built, for the most part, of rocks of great geological age. On the borders of Finland in the north and in central Siberia are rocks among the oldest in the crust of the earth. They are much folded, but worn down to an undulating plain. Elsewhere these ancient rocks are covered with later deposits of limestone, chalk, and sandstone which have been little influenced by earth movements and lie almost as flat as the level plains to which they have given rise. During the Ice Age the glaciers extended far over European Russia and deposited boulder clay and moraine. A line of moraines continues the direction of those of north-eastern Poland, and extends across European Russia, through the Valdai Hills, which are built of glacial materials, to the Arctic Ocean. Though ice sheets formed in parts of Siberia and in the

mountains of Central Asia, they were neither thick nor particularly extensive. They developed in areas where precipitation was low, and there was insufficient snow to feed ice sheets as extensive as those of northwest Europe. Consequently, ice sheets have left little evidence on the landscape.

CLIMATE AND VEGETATION

The single most important characteristic of the climate of the Soviet Union is its continentality. Because of the huge size of this land mass, large areas of the country are far removed from the ameliorating influence of the sea. In addition, mountain barriers prevent the influx of maritime effects on the Pacific coast in the Far East. Similarly, warm air masses from the lower latitudes of Asia are blocked on the south by the mountain border extending from the Caucasus through the Pamir-Altay ranges, and on to the ranges of southern Siberia. Consequently the huge land areas of the country heat rapidly in summer and cool

FIGURE 35-3. Generalized relief map of the U.S.S.R.



Near the beginning of the eighteenth century the empire, under the leadership of Peter the Great, was extended westward to the Gulf of Finland. The city of St. Petersburg (later Petrograd, then Leningrad) was founded there and served as the capital of the Russian empire until 1918. This window, opening on the West, was gradually enlarged with the absorption of the Baltic provinces, and under Catherine the Great, much of Poland was added. During the latter half of the century Russian rule was extended to the south. The defeat of the Crimean Tatars and the Turks brought the southern flank of the empire to the shores of the Black Sea.

In the nineteenth century the Tsarist empire expanded on all fronts. In the north, Finland was wrested from Sweden. In the southeast, the Caucasus were incorporated into Russia by 1830, and most of Central Asia to the Afghan border by 1870. In the Far East the Amur River provinces were wrenched from China, and the port city of Vladivostok was established on the Pacific in 1860. Construction of the Trans-Siberian Railroad was initiated in the last decade of the nineteenth century in order to tie together the vast eastern limb of the empire.

The empire of the Tsars had essentially reached its maximum size by 1900. Maritime outlets had been established on the Arctic and Pacific Oceans, as well as on the Black and Baltic Seas. In the years prior to World War I the pace of industrial and transport development quickened, agrarian reforms were initiated, and former territorial gains were consolidated. Such measures were violently interrupted, however, by Russian involvement in the war and the subsequent revolution and civil war which wracked and brought down the burgeoning empire.

Political and Economic Revolution

Domestic political and economic unrest in Russia, which had been flaring as early as 1905, was complicated by involvement in World War I. The Tsarist government, weak and strained by defeat in the war, was ripe for overthrow. After a suc-

cessful revolution in October of 1917, the Bolsheviks seized power and initiated their plans for a reorganization of the economy. However, attempts to establish order and stimulate the economy were stalled by civil war and foreign intervention. Lenin's government was menaced until 1921 by dissident "White Armies" in the Ukraine, Caucasus, and Siberia. In addition, British troops were present in Murmansk, Baku, Batumi, and Tbilisi; French detachments in Odessa on the Black Sea; Japanese in Vladivostok.

In the midst of this chaos the Bolshevik government experimented with communism. Where possible, land and larger industries were nationalized, banks transferred to the state, and agricultural products confiscated. Large landowners (kulaks)¹ were treated ruthlessly. With the objective of eliminating the kulaks, the government ordered confiscation of their property, as well as more repressive measures for the recalcitrant. The combined effect of war, repressive measures, and chaos brought about severe declines in industrial and economic production, and famine spread over Russia.

The period from 1921 to the end of 1928 was marked by a temporary retreat from the Communist experiment. During this time the New Economic Policy (NEP) was initiated by Lenin. Private land ownership was tolerated, the government loosened its hold on trade: in short, private sectors of the economy were allowed to operate within the socialist framework. As a result production levels in most sectors of the economy returned to those of the pre-World War I period.

From the earliest days of the Bolshevik revolution Lenin had held before the Russian people the objective of industrialization as a means of attaining higher living standards as well as greater military strength. It was not, however, until 1929 that serious moves were made in this direction. In

¹ The definition of "kulak" is somewhat vague in the Soviet literature. Generally it means a landowner who used hired labor to work his land, although in the chaos of postrevolutionary years it was applied somewhat arbitrarily to those who resisted government programs.

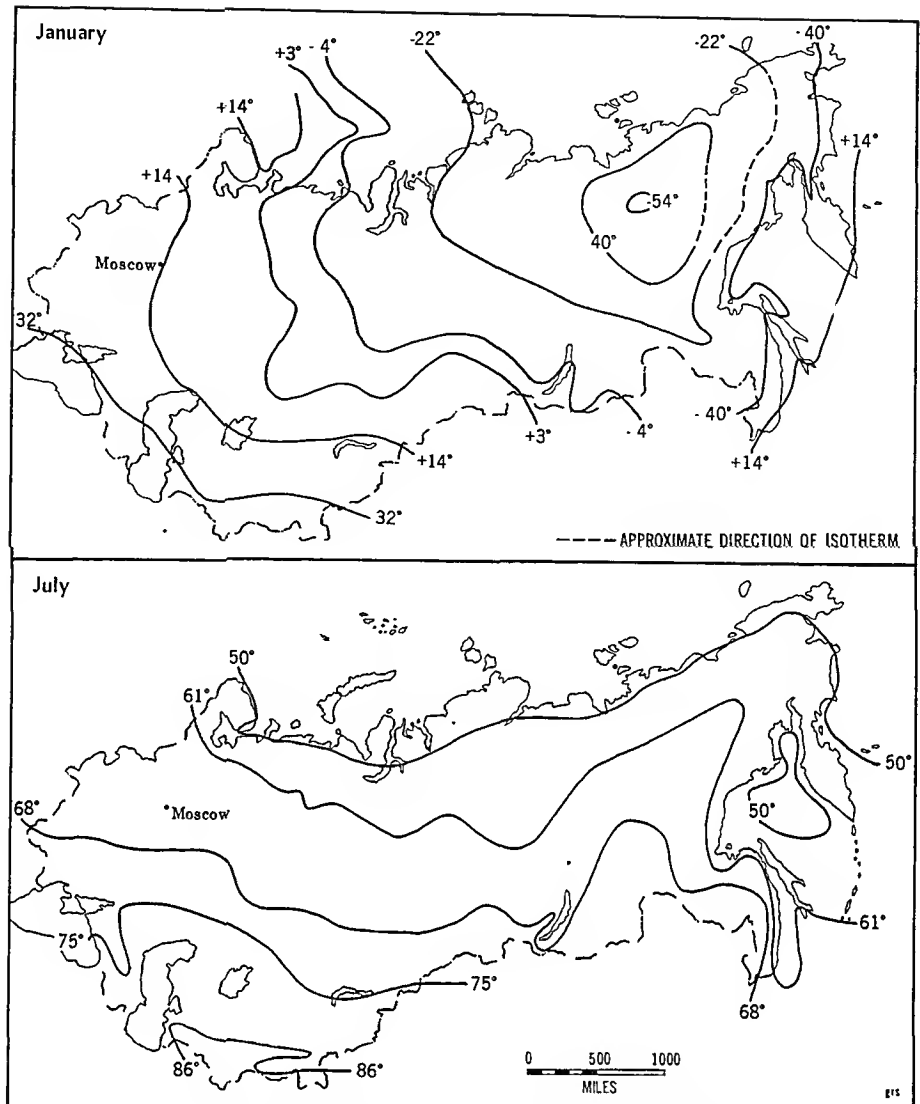


FIGURE 35-5. Alignment of January and July isotherms in the U.S.S.R.

closely associated with climate. A narrow strip of land covered primarily with moss and lichens extends along the Arctic coast and merges into the great coniferous forest zone of Russia, the taiga. In European Russia and in the southeast corner of Siberia the forest belt is extended by areas of deciduous and mixed forests. South of the forest region lie the prairies or steppes. This vast grassland region forms a huge triangle with its base between Kiev and the Black Sea and its apex near Lake Baikal in Siberia. Here the precipitation-evaporation balance is precarious. Thus,

although this region is the agricultural heartland of Russia, it is subject to periodic drought and resultant famine.

Southward the steppe merges gradually into the semidesert and desert regions of Central Asia. Vegetation in turn changes from short grass to xerophytic bushes and shrubs of the desert. Here, in the Kyzyl Kum and Kara Kum deserts, exotic streams such as the Syr Darya and Amu Darya provide water for agriculture. Today the areas near Samarkand and Tashkent are oases of cotton and fruit cultivation.

balance, done much to raise the standards of living. But its achievement was not an easy process. It consisted in the accumulation of capital goods—railways, dams, hydroelectric stations, and factories—and this could be done only by consuming less and working more. Only an autocratic and centralized authority could have carried through such an achievement. Fundamental to the plans was an improvement in the output of Russian agriculture and the provision of more foodstuffs for the towns. The resistance of the wealthier peasants, the ~~kulaks~~, to the plans of the government led to their elimination, and small holdings were merged into collective farms, large and, by Russian standards, highly mechanized and efficient. The success of the agricultural reorganization prepared the way for an intensification of the industrial.

Under Tsarist rule the chief centers of Russian industry had been in the west, accessible to Western capital, skill, and materials. Russian factory production remains today overwhelmingly in the west, in the regions of Leningrad and Moscow and in the Ukraine. These still produce a large part of the steel, textiles, chemicals, and products of engineering. But new industrial centers have been established farther to the east. The Ural Mountains, where there had been an early development in the metallurgical industries, has become the scene of a revitalized iron mining and smelting and steelmaking industry. Over 1,000 miles to the east, in the midst of which had hitherto been the almost untrodden wilderness of Siberia, coal was discovered and heavy industries have been established. In the ancient cities of Middle Asia, in the steppes of Kazakhstan, in the Caucasus, around Lake Baikal, and in the far east of Siberia close to the shore of the Pacific, new industries have been established.

The Physical Environment

In considering the geography of the Soviet Union, the phenomena that are best known and most prominent are those of the physical environment. A list of such phenomena would include the huge size of the country, its relatively low relief, northerly latitudinal position, and climatic continentality.

The U.S.S.R. is, except along the southern and eastern borders of Asiatic Russia, a region of gentle relief. In fact, the major portion of the country is a vast plain which extends from the western boundary to the Arctic Ocean on the

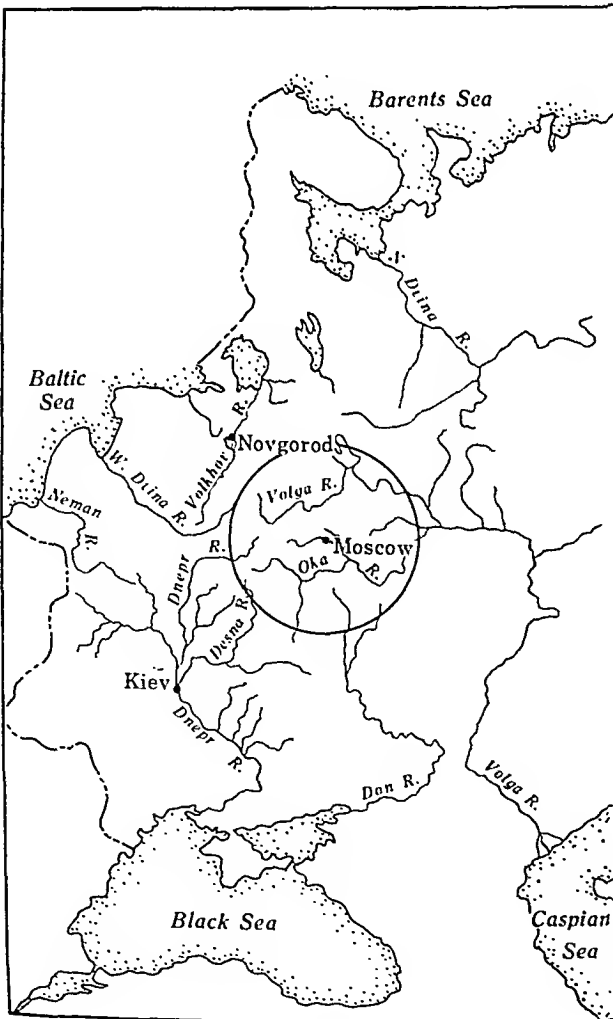


FIGURE 35-2. The major river systems of European Russia in relation to Moscow, Kiev, and Novgorod.

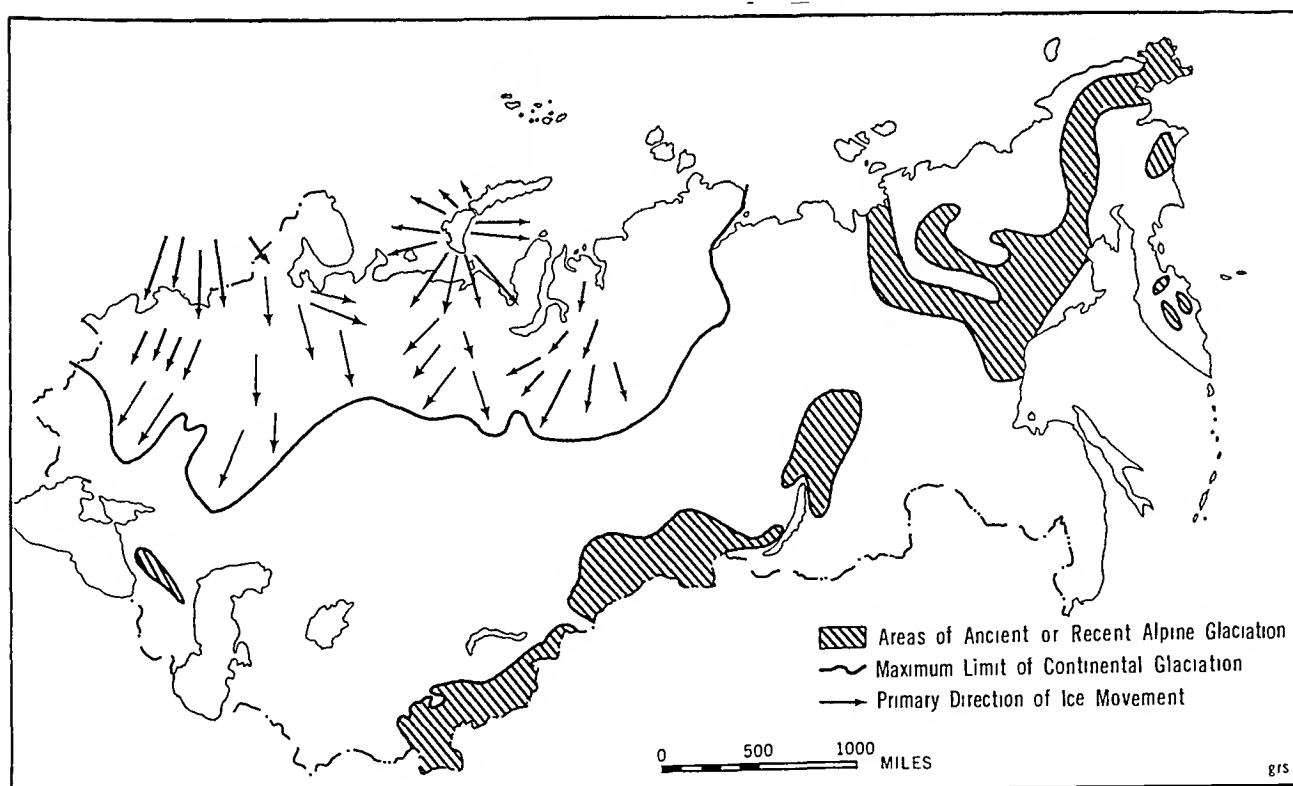
removed by the process of denudation, and in its place are sand and alluvium laid down by the rivers of the late glacial period as they made their way southward to the Black Sea or the Caspian.

The more northerly and westerly parts of the region remain thickly covered with glacial deposits. The separate, though somewhat imperfect, drainages of the Dnepr and Volga flow southward following the courses of rivers which existed here before the Ice Age, whereas the Niemen, Dvina, Velikaya, and Volkhov flow through marshy valleys, newly excavated in glacial deposits since the Ice Age. The landscape here resembles that of northeastern Poland: rounded, morainic hills; shallow valleys; wide, marshy depressions; and lakes slowly silting.

The coast, from the Finnish border to the Polish, is low and flat, broken only by low cliffs, formed where the waves of the Baltic Sea have cut into a drumlin or an esker. The coast, built of

easily eroded materials, has for most of its length been smoothed by the action of the sea. Headlands have been cut away, and estuaries and bays closed by sandy spits, behind which marsh slowly reclaims itself and becomes dry land. The Kurskiy Zaliv (*G: Kurisches Haff*), the estuary of the Niemen, has been cut off from the sea completely by a *Nehrung*, or spit, 60 miles long. The Frisches Haff, the joint estuary of the Pregel and the Nogat branch of the Vistula has today only a very narrow opening through the Frische Nehrung, kept open for navigation with much trouble and expense. Only in the Gulf of Riga does the sea penetrate deeply into this glaciated landscape, its mouth partially closed by irregular islands of glacial drift, Hiiumaa (*G: Dagö*) and Saaremaa (*G: Oesel*). The Gulf of Finland, structurally a continuation of the depression which contains Lake Ladoga, is part of the regional divide which separates the glaciated plain from the Baltic Shield.

FIGURE 35-7. Distribution of continental and alpine glaciation in the U.S.S.R.



rapidly in the winter. The annual range of temperature almost everywhere is great. In Moscow, for example, the average annual temperature range, using mean July and January figures, is 52° , whereas in Verkhoyansk, Siberia, it is 118° .

There is no part of the Soviet Union, except the southern shore of the Crimean peninsula and part of Transcaucasia, that does not have a cold winter, and over most of the country winters are severe in the extreme. The temperatures become increasingly severe with distance from the Atlantic and Pacific Oceans (Fig. 35-5), and the lowest temperatures, both average and absolute, are met with in eastern Siberia. Here, at Verkhoyansk, temperatures lower than -90° have been recorded, and the mean January temperature is -59° . Summers are hot in southern Russia, but temperatures fall off regularly toward the north, and along the Arctic coast the warmest month averages less than 50° .

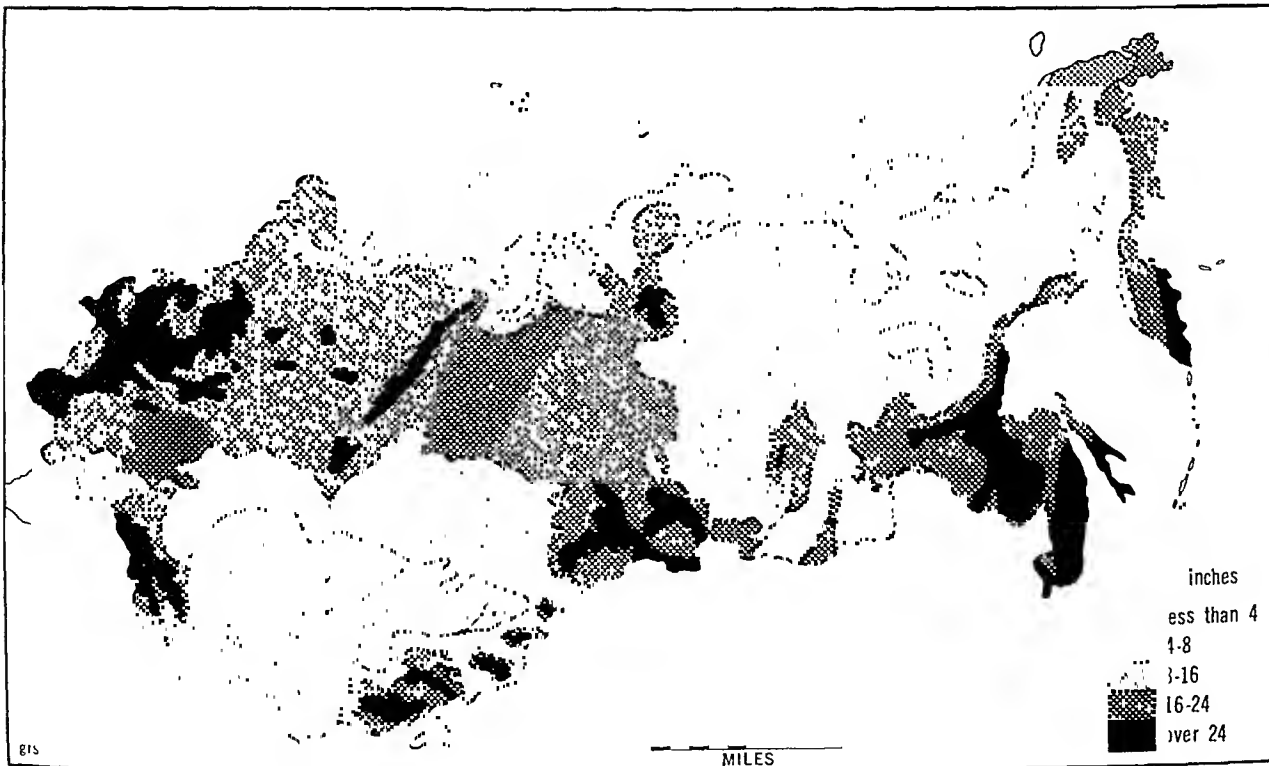
The variations in the precipitation regime over

the Soviet Union are, generally speaking, slight as a result of the level terrain. The distance of most regions from the ocean, as well as the blocking effect of mountains on the south and east, assure that the amount of precipitation will be slight. Over most of European Russia the average annual rainfall amounts to less than 30 inches, and this diminishes toward the east and southeast. Much of Asiatic Russia receives less than 20 inches, and northern and eastern Siberia receive even less. The area near the Aral and Caspian Seas has less than 10 inches yearly (Fig. 35-4).

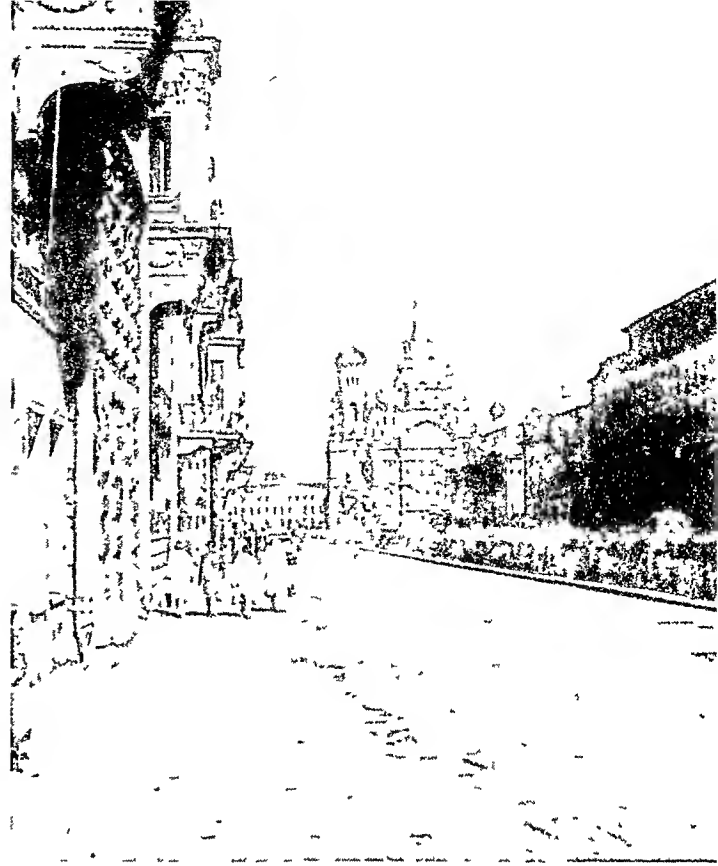
Areas of heavy rainfall are found on the north and northeast coast of the Black Sea, the mountain areas of the Caucasus, and along the mountain rim of Central Asia and southern Siberia. Precipitation in these regions is primarily the result of orographic mechanisms. There are rainfall accumulations up to 40 inches in the Far East and in Kamchatka due to the monsoonal effect.

Vegetation patterns in the Soviet Union are

FIGURE 35-4. Average annual precipitation in the U.S.S.R.



A street scene along one of the many canals which wind through the city of Leningrad. Western influences on architecture are strikingly apparent in this city, once called "Russia's window to the West." (G. J. Demko.)



together with the Kola peninsula, is one of gentle relief. Its rocks, exposed over much of the area, were scoured by the movement of the ice sheets during the Quaternary period. Hollows and depressions were gouged in its surface, and fragments of moraine left abandoned by the ice in the closing phases of its retreat. Much of the region has an appearance similar to that of the lake plateaus of Finland, of which it is, in fact, a continuation. Over considerable areas peat has formed in the shallow lakes, and the muskeg-like swamps mark the beginning of the great northern tundra. A series of lakes, among them Ladoga and Onega, the largest in European Russia, and the deep branching inlet of the Arctic Sea that is known as the "White Sea," mark indelibly the margin of the region. They have formed where the hard rocks of the shield dip beneath the younger and softer rocks which compose the rest of the plain.

The Ural Mountains. The plain of European Russia is set within a frame of mountains and hills with a few wide gaps through them. The Polish Plain

to the west and the Ural-Caspian Gap to the east are among the most important interruptions in the line of hills. But from the Caspian lowlands northward to the Arctic Ocean stretch the Ural Mountains, the longest and most continuous of these low barriers.

The Ural Mountains stretch for a distance of about 1,500 miles. They are slightly sinuous, but take a generally north-to-south direction. In relief they are narrow and uncomplicated. Toward the north, only 80 miles separate the European from the Asiatic plains. In the south this distance widens to over 150 miles. Their altitude is low; much of the range never rises above 3,000 feet, and the highest point, Gora Narodnaya (*Eng*: People's Peak), reaches only 6,184 feet. The Ural Mountains form, in fact, a narrow plateaulike region. Their upper surfaces are level or undulating, formed by the peneplanation of a mass of intensely folded rocks of Upper Paleozoic age. Igneous intrusions give rise to summits which are lifted above the general summit level. Iron ores and nonferrous metals are widely distributed through the range, and coal is found around its

THE PHYSICAL REGIONS OF THE SOVIET UNION

The physical divisions of Russia (Fig. 35-6) are nowhere as clear-cut and distinct as are those of regions previously examined. Land forms change little over immense distances, and climate and resulting soil and vegetation exercise the greatest influence on human settlement and economic development. The following landform regions, nevertheless, constitute a useful framework over which to spread the patterns of settlement, agriculture, and industry.

THE GREAT RUSSIAN PLAIN

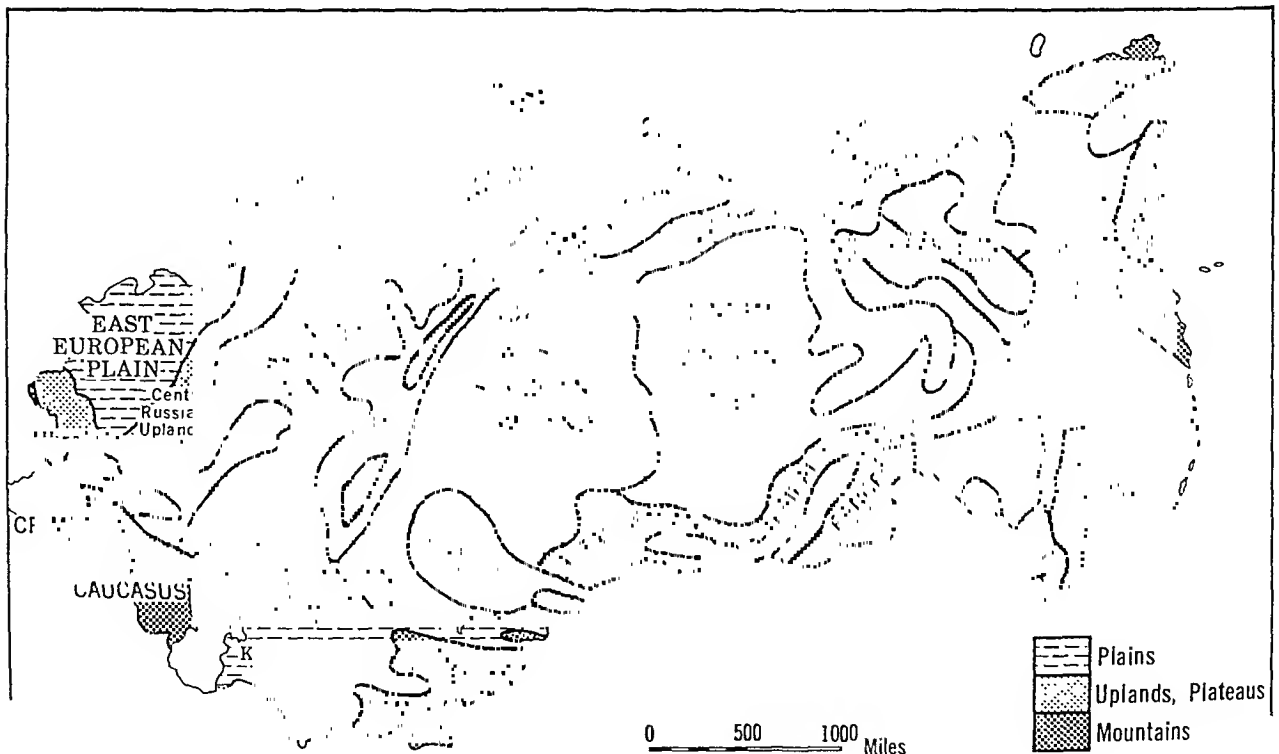
Extending from the western border of the Soviet Union, the Great Russian Plain sweeps across the width of the country penetrating deep into Siberia where it abuts on the Central Siberian

Platcau (Fig. 35-7). This zone of plains includes the East European Plain, the Central Russian Plain, the West Siberian Lowland, and the Turanian Lowland, separated only by the rolling Central Russian Upland and the low line of the Urals.

Underlying the sedimentary rocks of the East European and Central Russian Plains is the ancient crystalline crust of the earth. These crustal rocks have been essentially undisturbed save for minor tectonic uplifts such as the Central Russian Upland and the Ukrainian Upland. Neither of these areas breaks the continuity of the near-level terrain, since elevations rarely exceed 1,000 feet.

The Quaternary ice sheets had a significant effect on the northern portion of the plains. At their greatest extent, the eastern margin of the glaciers ran southward from the Arctic coast near the mouth of the Pechora River, to the east and south of the site of Moscow, and southeastward to southern Poland. Over the outer parts of the region thus enclosed, boulder clay has been largely

FIGURE 35-6. The physical regions of the Soviet Union.



Kopet Dagh, whose summits look from within Iran out over the lowlands of Soviet Central Asia. Northeastward from the Pamir stretches the Tien Shan, forming for much of its length a high and almost impenetrable barrier between the Soviet Union and China. Thrown off, as it were, from its flanks are the Alai, the Ferghana and Kirghiz, and the Ala-Tau Mountains, framing between them small depressions and basins to which the snows of the high mountains supply water to irrigate the oases of Tashkent, Samarkand, Ferghana, Bukhara, and Dushambe (formerly Stalina-bad). These ranges rise continuously to over 10,000 feet, and from this level individual peaks rise to more than 14,000. In scale and relief, these mountains of Soviet Central Asia bear close comparison with the Rocky Mountains of Colorado, Wyoming, and Montana.

On each side of the Ala-Tau range, a kind of outlier of the Tien Shan, are depressions which provide the only easy routeways between the lowlands of Central Asia and the great river valleys of China. Together they form the Djungarian Gate, through which, at least since the Middle Ages, caravans have brought the products of China westward. Recently a railroad has been under construction through one of the gaps of the Djungarian route.

Altay-Sayan-Baikal-Stanovoy Region. North of the Djungarian Gate the mountains are lower and more open and accessible. They differ from the Tien Shan and its related ranges in being very much older. Folded during the Paleozoic, they have been peneplaned, faulted, and again uplifted and eroded to their present form: an immense number of relatively short, detached ranges, which make an extremely confusing pattern on the map.

The highest and most extensive of the ranges are those whose names have been used to designate this region. The Altay Mountains lie mainly in Mongolia; only their western extremity lies within the Soviet Union. The Sayan Mountains extend northeastward from the Altay toward Lake Baikal, parallel with the Mongolian border. Curv-

ing around the southern end of Lake Baikal they merge into the system of parallel mountain ridges and narrow valleys which stretches from the lake eastward into Manchuria. To the east, beyond the valley of the Olekma branch of the Lena River, the same kind of relief, but lower and more denuded, is continued in the Aldan Plateau and the Stanovoy Mountains.

The Central Siberian Plateau. The vast region of the Central Siberian Plateau, almost as extensive as the West Siberian Lowland which it borders, is a plateau similar in altitude to the Kazakh Upland, but more extensively dissected by tributaries of the Yenesei and Lena. It is made up of very ancient rocks, partially covered by Paleozoic beds which have been little disturbed by tectonic forces. On the south it is bordered by the upper Lena and the Angara, a tributary of the Yenesei. North of this line, which is followed by a railroad and has a number of settlements, the forests of the plateau are almost uninhabited. The region is, however, potentially rich in minerals, particularly coal.

The Northeastern Highlands and the Pacific Coast Ranges. In the extreme east of Siberia and bordering the Pacific Ocean from Vladivostok to the Bering Strait are mountains which, in contrast to those of southern Siberia, are young and built primarily of soft, sedimentary rocks. They are divisible into a southerly group, lying to the south of the Stanovoy, and a more extensive and less known group to the north. The former consist of the Bureya and Sikhote Alin ranges, separated by the plain of the lower Amur River. To the north, contained between the curve of the lower Lena River and the Pacific and Arctic coasts of Siberia, are the crescent-shaped Verkhoyansk and Cherskiy ranges, merging eastward into the Gydan and Chukotskiy Mountains. This is the last area of the Soviet Union to have been opened up, and all maps except the most recent are likely to be quite inaccurate in their portrayal of it. It has the most extreme climate and lowest recorded temperatures to be found in the Soviet Union. It is a

The glaciated region merges almost imperceptibly into the unglaciated plains which extend from Poland and Romania eastward into Asia. Geologically the plains are a region of flat-bedded or only very slightly folded sedimentary rocks of Secondary geological age. They tend to form a series of low, eastward-facing scarps. The Dnepr River, for example, has a series of bluffs along its western or southwestern bank, with low, flat, and occasionally marshy land along the opposite or eastern side of the river. Kiev and Volgograd (formerly Stalingrad) were both on the top of such bluffs.

The rivers Dnestr, Bug, Dnepr, Don, and Volga divide this region into a series of rolling plateaus, dissected in places by narrow canyonlike river valleys. Over most of the area there is a cover of loess. This gives rise to a deep, dry, friable, and fertile soil, one of the finest soils in the Old World. Its porous nature permits rapid drainage, so that its surface is dry and free from the lakes and marshes which characterize more northerly regions.

Beyond the Ural Mountains the Great Russian Plain is continued southeastward along the Arctic coast to the most easterly extremity of Asia. The West Siberian Lowland is a region of very gentle relief, extending from the Ural Mountains eastward to the valley of the Yenisey River, an area of about 900,000 square miles. This is probably the largest area of level or nearly level land on the earth's surface. Its surface is made up of Quaternary and recent deposits, over which the rivers Ob, Irtysh, and Yenisey meander slowly to the Arctic Ocean. A large part of the region has so gentle a slope and the runoff is so slow that much of it is covered by marsh, frozen hard in winter and impassable in summer. Only along its southern margin does the land surface rise sufficiently to be free from the danger of summer flooding, and here lie the transportation routes from the southern Urals to the Kuznetsk region, part of the west-east communication system of the Soviet Union.

Without any conspicuous change in landscape or slope, the southern portion of the Russian plains merge into the Turanian Lowlands which lie around the northern end of the Caspian Sea and

extend eastward to the Tien Shan and the uplands of Kazakhstan, bounded on the south by the Elburz and Kopet Mountains. This region was the site of a sea in late Tertiary times, and is now made up of the level deposits—mainly sand and clay—which were deposited at that time. It is very low-lying; as the Caspian Sea is approached, the surface drops below the level of the oceans, and along the Caspian shoreline it lies about 92 feet below sea level.

The rocks of the Caspian depression are highly saline; the dry climate and the high evaporation rate bring salt to the surface, which in turn makes the soil unfit over large areas for agriculture or even for plant growth. Here the sandy deposits, easily disintegrated, are swept up by the wind into large areas of moving sand dunes.

To the east and south the Turanian Lowland resembles those which lie to the north and west of the Caspian Sea. But Quaternary lake deposits are less extensive, relief is stronger, and the region is very much drier. None of its rivers make their way to the ocean. The longest, the Amu Darya and Syr Darya, rise in the Central Asian Mountains and make their way to the shallow depression which is occupied by the Aral Sea. Other rivers are temporary in their flow and finally evaporate away, amid the arid steppe. The prevailing agent of erosion is the wind which dries out the surface of the land and carries it away in dust storms or builds it into vast, mobile sand dunes, prevalent in the Kara Kum and Kyzyl Kum deserts. Irrigation is practiced along the foot of the bordering mountain ranges and the valleys of the rivers that flow out toward the center of the region.

Karelian Shield. In the northwest of European Russia lies the Karelian Shield, an extension of the Baltic Shield, which covers most of Scandinavia (see pages 5-6). It consists of crystalline rocks of great age. They have passed through more than one, perhaps many, cycles of earth movement, in which they have been intensely folded, and after each uplift have been again denuded to an almost level peneplain. Today this region, which corresponds roughly with the Karelian A.S.S.R.

The Population and Economy of the U.S.S.R.

36

Since 1928 the monolithic socialist government of the Soviet Union has planned and directed the construction of canals and railroads, electrification throughout the country, agricultural reform and expansion, and the development of manufacturing (particularly heavy industry). With only a few exceptions and a period of interruption during World War II, modernization and industrialization have been successfully accomplished to a point where the United States remains its only economic rival. Fundamental to such a process were the nearly superhuman efforts called forth, or exacted, from the Soviet population. This chapter is primarily concerned with the systematic topics most closely related to the spectacular spread of economic development across the Soviet land.

POPULATION

The Soviet Union, with a population of nearly 209 million,¹ is the third most populous country in the world, after China and India. This population is very unevenly distributed. In fact, about three-fourths of all the Soviet

¹ All population figures cited in this chapter are based on the data from the Soviet Census of 1959 unless otherwise noted.

margin. The Ural Mountains belong, in fact, to that Hercynian system in central Europe which has already been discussed. Its physical features are like those of the Harz, the Bihor, and the Rhodope.

Crimea and the Caucasus. Across the south of European Russia lie mountains younger and higher than the Urals. These belong to the Alpine system and continue the direction of the Balkan Mountains of Bulgaria (see page 374). They are represented by the short, narrow range of the Crimean Mountains and by the far higher and more extensive Caucasus.

The northern half of the Crimean peninsula belongs to the plains of southern Russia; the southern is made up of the Crimean Mountains, a short limestone range, only about 65 miles in length and at most 25 miles across, but rising steeply from the Black Sea coast to heights of over 5,000 feet. At their southern foot, between the bare mountain slopes and the beaches, are the Soviet Union's "Mediterranean" resorts.

The peninsula of Kerch and the narrow Straits of Kerch separate the Crimean Mountains from the Caucasus. The latter extend for some 670 miles from Novorossiysk in the northwest to Baku in the southeast, and for much of this distance they lie 10,000 feet above the Black Sea. They were formed at the same time as the Alpine system of Europe, and, like the latter, they consist of a series of parallel or subparallel ranges. The strata of which they are built are intensely folded, and at many points have been intruded with igneous rocks. The range has an igneous core for part of its length, and its folding was followed by volcanic activity. The highest mountain of the Caucasus, Mount Elbrus (18,468 feet), is an extinct volcano.

The Caucasus are truly alpine, with ice-fretted peaks and permanent snowfields. Toward the north the mountains drop through the rolling hills of Stavropol to the Caspian lowland; to the south, they drop more abruptly to a depression which extends from the Black Sea to the Caspian and separates the Caucasus from the mountains

of Armenia. These are of similar geological age and composition, but form a high and deeply dissected plateau—the eastward extension of the plateau of Asia Minor—rather than a distinct and separate mountain range. The Armenian Mountains do not rise as high as the Caucasus; they have little permanent snow, and the highest mountain, Mount Ararat (16,946 feet), lies just beyond the Soviet boundary, in Turkey. Between the Caucasus and the Armenian Mountains are the two plains of Transcaucasia: a more westerly plain, drained by the river Rion and lying wholly within the Georgian S.S.R., and the more easterly plain of the Kura River, in the Azerbaydzhan S.S.R. The two are connected by the upper Kura Valley, which carries the east-west lines of communication and is the location of the Georgian capital, Tbilisi.

Kazakh Upland. The Kazakh Upland is a peneplain built of Paleozoic rock, lying at elevations of from 1,000 to 3,000 feet. This upland forms the drainage divide between the Arctic Ocean to the north and the Aral Sea and Lake Balkash to the south. The relief of the region varies from mountainous in the center to rolling plain on the edges. The central area of greater relief and higher elevation has been eroded into a landscape of separated massifs. The denudation of the mountains which once covered this area has exposed a vast mineral wealth, including the coal of Karaganda and the copper of Dzhezkazgan.

The Pamir and Related Mountain Ranges. The region of the Pamir and related mountain ranges is by far the most homogeneous of the physical regions, and consists of that part of the Pamir, the "Roof of the World," which lies within the Soviet Union, together with the mountain ranges which radiate from it. The Pamir itself, a pathless wilderness of high mountains, lying at over 10,000 feet with peaks rising to 24,590 feet (Stalin Peak), is the meeting place of the Soviet Union, Afghanistan, Pakistan, India, and China. From it the Hindu Kush Mountains of Afghanistan extend westward, and are continued in the

as a result of military and civilian deaths in the war, birth deficits, and immigration.

The spatial pattern of population change for the period from 1939 to 1959 reflects the effects of the war and domestic economic changes. Most of the areas of European Russia have experienced growth rates less below the national average. Byelorussia and the western areas show absolute population decline, partly a consequence of the war and Nazi occupation. The Central Chernozem Region registered a decline of 16 per cent, which is primarily the result of out-migration to nearby urban centers and to the eastern regions of the country. Population growth in nearly all the non-Russian and Asiatic portions of the U.S.S.R. was

well above the national average. In these regions, mostly rural, birth rates are higher than those of the more urbanized west. In Central Asia and Kazakhstan, for example, birth rates exceed 36 per 1,000, compared to 22.5 per 1,000 for the U.S.S.R. as a whole¹ Moreover, the eastern regions, particularly Siberia, Kazakhstan, and the Far East, have long been in-migration centers attracting migrants from European Russia with agricultural and industrial opportunities.

¹ The mortality rate for the U.S.S.R. was given as 7.5 per 1,000 in 1959. Thus, the rate of natural increase was 15 per 1,000 or 1.5 per cent, compared to a rate of about 1.3 per cent for the United States.

TABLE 36-1. Population Changes in the Republic and Selected Regions of the U.S.S.R., 1939-1959

Unit	Population		Per cent change
	1939	1959	
U.S.S.R.	190,677,890	208,826,650	9.5
R.S.F.S.R.	108,378,781	117,534,315	8.4
Moscow Oblast	8,790,829	10,908,908	24.0
Central Chernozem Region	10,439,270	8,697,909	-16.0
Western Siberia	7,936,870	10,159,437	28.0
Eastern Siberia	5,185,234	6,960,535	34.0
Far East	2,561,677	4,346,803	69.7
Ukrainian S.S.R.	40,468,848	41,869,046	3.4
Southwest Ukraine	20,856,342	20,254,509	-3.0
Donets-Predneprovsk	14,760,227	16,548,405	12.0
Byelorussian S.S.R.	8,909,994	8,054,648	-10.0
Uzbek S.S.R.	6,335,917	8,105,704	28.0
Kazakh S.S.R.	6,903,507	9,304,847	53.0
Tselinniy Kray	1,610,696	2,753,136	71.0
Georgian S.S.R.	3,540,023	4,044,045	14.0
Azerbaijdzhanian S.S.R.	3,205,150	3,697,717	15.0
Lithuanian S.S.R.	2,880,000	2,711,445	-6.0
Moldavian S.S.R.	2,452,023	2,884,477	18.0
Latvian S.S.R.	1,884,756	2,093,458	11.0
Kirgiz S.S.R.	1,458,213	2,065,837	42.0
Tadzhik S.S.R.	1,484,440	1,979,897	33.0
Armenian S.S.R.	1,282,338	1,763,048	37.0
Turkmen S.S.R.	1,251,883	1,516,375	21.0
Estonian S.S.R.	1,052,017	1,196,791	14.0

SOURCE: *All-union Census of Population*, U.S.S.R., 1959.

region of bare mountains and tundra, offering little to man except the possibility of mineral exploitation from beneath its frozen soils.

Southeast of the Chukotskiy range and overlooking the Bering Sea is the Koryak range. It lies in the latitude of southern Baffin Land, which it partly resembles. It is continued southward by

the mountainous backbone of the barren Kamchatka peninsula, which in turn is continued toward Japan by the chain of the Kuril Islands. Within the curve of the latter, and close to the Soviet Pacific coast is the island of Sakhalin, formed by a chain of low mountains which are structurally continued in Japan.

explanation for the absolute loss of nearly 900,000 Kazakhs between 1926 and 1939 must certainly lie in the collectivization program carried out in Kazakhstan in the 1930s, which the natives fiercely resisted.

Under the Tsarist rule little distinction was made in the administration of the many separate peoples which formed the Russian empire. It is claimed that, under Soviet rule, each distinct cultural area is separated from its neighbors, its culture protected and preserved, and the government adjusted to the needs of the people. In this way, the Soviet Union is made up of 15 Soviet Socialist Republics, which, it is claimed, are self-governing in most matters touching their local administration. In addition there are 19 autonomous republics and 9 autonomous oblasts. These are usually comparatively small in area and are contained within the larger Soviet republics. They are less completely self-governing but have a measure of independence sufficient to preserve their cultural identity. European Russia is made up of the three S.S.R.'s—the Russian, Ukrainian, and White Russian (Byelorussian). In addition there are three S.S.R.'s in Transcaucasia, namely Georgia, Armenia, and Azerbaidzhan. The middle Volga Valley and steppe area, settled in earlier centuries by considerable numbers of Tatar peoples, now have no fewer than six autonomous republics, inhabited by the Chuvash, Udmurt, Bashkir, Tatar, Mari, and Mordvinian peoples. A seventh, which once contained the German colony of the Volga, was abolished during World War II and the German populace resettled in Siberia and Kazakhstan. The three Baltic States of Estonia, Latvia, and Lithuania, annexed in 1940, and Moldavia, formerly a part of Romania, are now full republics. The Turkic region of Central Asia is organized into the Kazakh, Turkmen, Uzbek, Tadjik, and Kirghiz Soviet Republics. Much of the Soviet Arctic, inhabited only by small and backward tribes, is administered as a number of autonomous republics and autonomous oblasts.

Recent Soviet nationality policy has been one of toleration of cultural autonomy—"national in form, socialist in content." The government has

firmly opposed political nationalism if not clearly aimed at Soviet patriotism.

URBAN AND RURAL POPULATION CHANGES

Since 1928 one of the most consistent and rapid of the demographic processes in the U.S.S.R. has been urbanization. In 1926 the urban population of the country was 23 million, or 18 per cent of the total, and by 1939 it had increased to 60 million, or 32 per cent of the total. Urban dwellers numbered nearly 100 million in 1959, comprising 48 per cent of the population. Clearly, the urbanization process is closely related to the rapid industrialization that has taken place in most sections of the country. It has been estimated that, of the 40 million increase in urban dwellers since 1939, more than 25 million have been people who migrated from rural places to cities. Since the initiation of the First Five-Year Plan, 600 new urban centers have been created. Moreover, the number of cities with a population of more than 100,000 has increased from 31 to 167, while those of more than half a million increased from 3 to 26. The major urban concentrations include (1) the central industrial cities grouped around Moscow, (2) Leningrad, (3) the string of cities along the Volga River extending from Gorkiy to Astrakhan, (4) the Urals group including Perm, Sverdlovsk, and Chelyabinsk, (5) the Donbas cities of southeastern Ukraine, (6) the cities of the Kuzbas in western Siberia, and (7) the oasis cities of Central Asia radiating from Tashkent. There are of course a great many large cities which are more isolated, including Kiev, Baku, Tbilisi, Omsk, and Vladivostok.

Changes in the rural component of the population have been no less marked. In general, the number and proportion of rural folk are rapidly declining, particularly in the old settled areas of European Russia and in the urban industrial regions. Prime examples of such areas are the Baltic States, the Donets-Predneprovsk Region of the Ukraine, and the Volga area (Table 36-4). Collectivization, which welded hundreds of thousands of small farm units to collective and state farms, and mechanization have reduced the need for

citizens live in that part of the R.S.F.S.R. which lies east of the Urals and in the Ukrainian S.S.R. Population can be considered dense only in the industrial provinces grouped around Moscow, in the Leningrad area, the upper Volga Valley, and the Ukraine (Fig. 36-1). Small islands of relatively dense population can be found in Asiatic Russia near the southern end of the Urals, in the Kuzbas industrial region, and in the oasis cities of Central Asia. A wedge-shaped belt of light population tapers eastward along the border of the forest and steppe, paralleling the Trans-Siberian Railroad. Everywhere else densities are small, generally less than 25 people per square mile, and in much of central and eastern Siberia, less than 1.

The growth of population in the Soviet Union since the October Revolution is indeed difficult to characterize. World War I, revolution, civil war, famine, World War II, and territorial aggrandizement have greatly effected the population and

present serious obstacles to analysis. We can formulate some generalization from the gross figures and concentrate on the changes since 1939.

Population growth in the last two decades of Tsarist rule was rapid, increasing from 106 million in 1897 to 140 million by 1914, an increase of about 32 per cent. In the period from 1914 to 1926, the year of the first Soviet census, population increased by only about 7 million, or 5 per cent. War deaths, birth deficits, and territorial loss afford some explanation for the small growth rate. The period from 1926 to 1939 was one of relative domestic tranquility in which the population grew from 147 million to more than 190 million, a 30 per cent increase. The Soviet Union's involvement in World War II had a disastrous impact on growth. In the 20 years between 1939 and 1959 population increased by only 18 million, or about 9.5 per cent. The population deficit of this period is estimated at more than 25 million

FIGURE 36-1. Population density in the U.S.S.R.

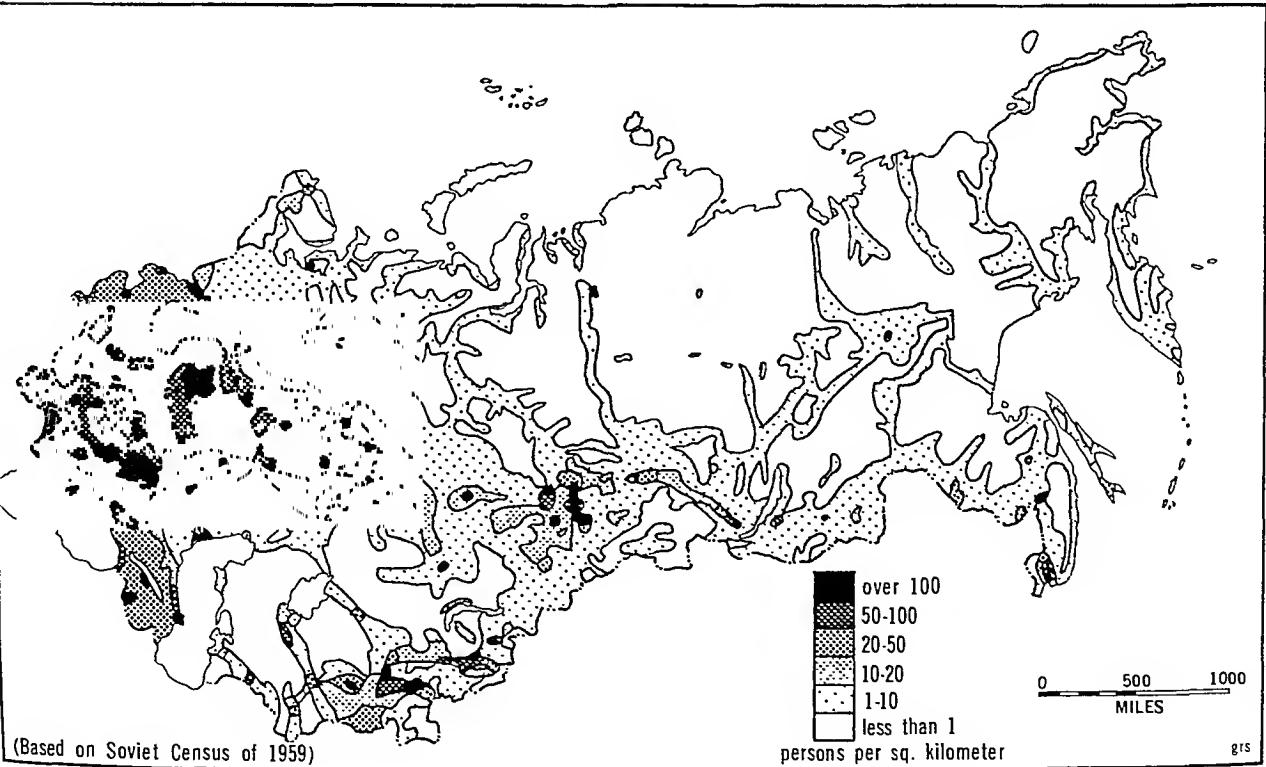
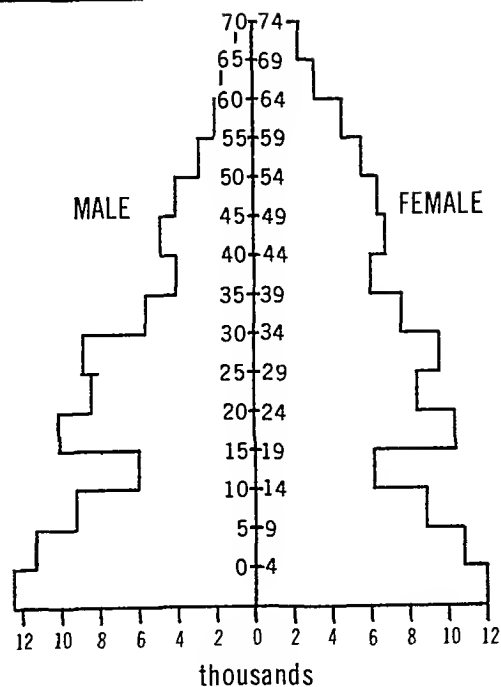


TABLE 36-4. Changes in the Rural Population in the Republics and Selected Regions of the U.S.S.R., 1939-1959

Area	Rural population (in thousands)		Per cent change
	1939	1959	
U.S.S.R.	130,268	108,849	-16
R.S.F.S.R.	72,083	55,923	-23
Central Industrial Region	14,538	9,723	-23
Central Chernozem Region	8,983	6,360	-28
Volga Region	8,757	6,426	-27
Western Siberia	5,531	4,782	-13
Far East	1,288	1,321	+3
Ukraine	26,900	22,722	-16
Donets-Predneprovsk	7,334	5,677	-23
Southwestern Region	16,498	14,443	-12
Byelorussia	7,055	5,574	-21
Uzbekistan	4,866	5,377	+11
Kazakhstan	4,404	5,243	+19
Georgia	2,474	2,331	-5
Azerbaijdzhan	2,048	1,930	-5
Lithuania	2,221	1,665	-25
Moldavia	2,123	2,242	+7
Latvia	1,222	919	-25
Kirgizia	1,188	1,369	+15
Tadzhikistan	1,235	1,334	+8
Armenia	916	881	-4
Turkmenia	836	816	-2
Estonia	697	521	-25

SOURCE: *All-union Census of Population, U.S.S.R., 1959.***FIGURE 36-2. Age and sex pyramid for the Soviet population (1960).**

NATIONALITY COMPOSITION

The population of the U.S.S.R. is an amalgam of peoples of varied race and origin. It includes such small remnants of ancient and primitive peoples as the Chukchi and Yukaghir of Siberia, the Mongols of Soviet Asia and the Far East, and the Tatar groups which migrated westward along the grassland belt and settled in the steppe area and its borderland. The Caucasus Mountains and Transcaucasia are also inhabited by a number of distinctive peoples, mainly of Turkic origin. Most of western Russia, however, is inhabited by Slavic peoples, among which three groups are of greatest importance, Great Russians, Ukrainians, and Byelorussians (White Russians). These three

account for 75 per cent of the total population. Great Russians make up the major proportion of the population of the R.S.F.S.R. (83 per cent) and Kazakhstan (43 per cent) and are important minorities in the Kirgiz S.S.R. (30 per cent), Latvia (27 per cent), and Estonia (20 per cent).

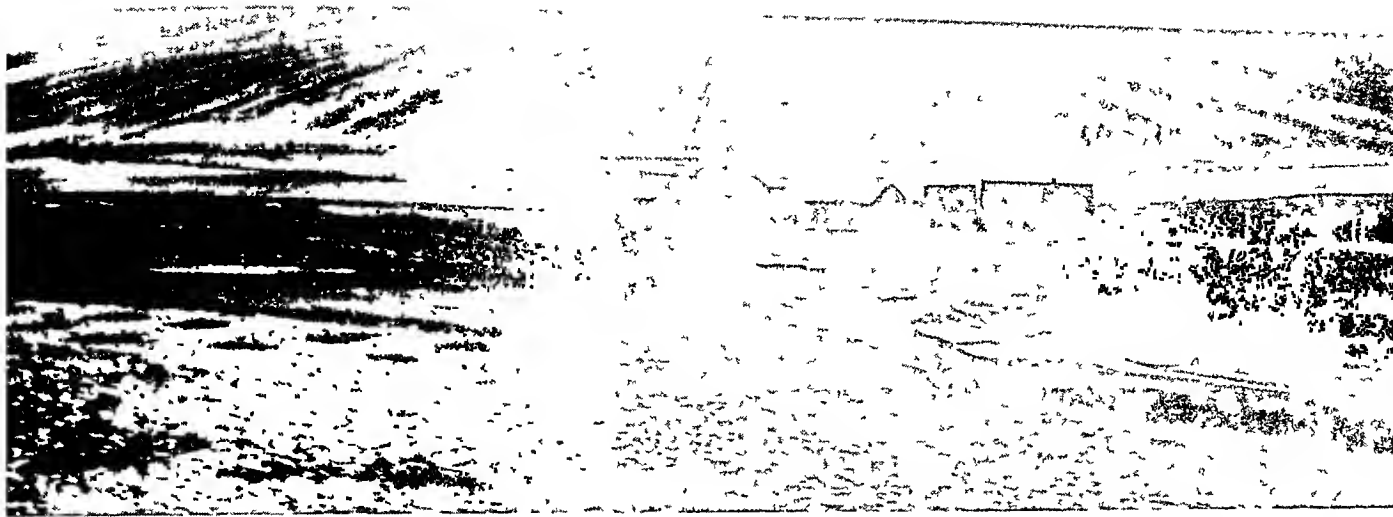
Rates of growth of the nationality groups often reflect the turbulent history of the Soviet Union (Table 36-2). The very small increase in the Ukrainian population and the absolute decline in Byelorussia since 1939 certainly show the effect of World War II and Nazi occupation, although assimilation and out-migration (during the chaos of war) have also played a role. Similarly, the decimation of the Jewish population stems from the war and the Nazi policy of extermination. The

TABLE 36-2. Population Changes of the Major Nationalities of the U.S.S.R., 1926, 1939, 1959

Nationality	Population (in thousands)			Percentage Change	
	1926	1939	1959	1926-1939	1939-1959
Great Russian	77,791	99,020	114,114	27	14
Ukrainian	31,195	35,611	37,253	14	4.6
Byelorussian	4,739	8,275*	7,913	80	-4.4
Uzbek	3,955	4,845	6,015	22	24
Tatar	3,478	4,313	4,968	24	16
Kazakh	3,968	3,101	3,622	-22	16
Azerbaijdzhanian	1,707	2,275	2,940	33	29
Armenian	1,568	2,152	2,787	37	30
Georgian	1,821	2,249	2,692	24	19
Lithuanian	.....	2,032	2,326	..	14
Jew	2,672	4,800	2,268	66	-53
Moldavian	.....	2,060	2,214	..	7
German	1,247	1,424	1,620	14	14
Latvian	.....	1,628	1,400	..	-14
Estonian	.....	1,143	989	..	-13
Polish	.....	2,027	1,380	..	-32
Kirghiz	763	884	969	16	10
Chechen	319	408	419	28	2
Kalmyk	129	134	106	4	-21

* The figure shown for Byelorussians is inflated by the addition of Polish territory. The Byelorussian population without this addition was about 5 million.

SOURCES: F. Lorrimer, *Population of the Soviet Union: History and Prospects*, League of Nations, 1946; and *All-union Census of Population, U.S.S.R., 1959*.



The vast and fertile Black Earth steppe of the Ukraine. The absence of trees and relief is characteristic of this region, often called the "breadbasket" of the Soviet Union. (G. J. Demko.)

and Kazakh Upland, and pushes to the north into the Siberian Lowland. In terms of the land-use regions (Fig. 36-3) it covers the steppe and extends northward into the belt of deciduous and mixed forest, and southward into the dry steppe and semidesert.

Small outliers of cropland are spread along the northern foothills of the Caucasus and through the valleys of Transcaucasia. They occur where rivers emerge from the mountains of Central Asia and follow these rivers out into the lowlands of Central Asia, until there ceases to be enough water to irrigate them. Small oases of farming continue on eastward beyond the main region of crop farming, around Lake Baykal, along the Amur Valley and along the Pacific coast. But the richest and most intensively used of all Russian farmlands are in the Black Earth Region of southern Russia (Fig. 36-3). Here, a rich chernozem soil has been developed over an area formerly covered by loess. It is well drained and easily cultivated; the growing season lasts more than 180 days over much of the area, and summers are long and hot. These conditions gradually deteriorate eastwards, as rainfall diminishes and winters become longer and more severe. There is little room for the

extension of agriculture in the heart of this Black Earth belt; only on its dry, eastern margin are there still virgin lands, awaiting the plow. The Soviet Union, with today only about $2\frac{1}{2}$ acres of cropland per person and a rapidly rising population, is in need of more land to cultivate or greater yields from existing farmland.

The former remedy for the agricultural problem was attempted in the form of the Virgin and Idle Lands Program (see page 476). Under this project, more than 90 million acres of virgin or unused land in northern Kazakhstan and western Siberia were put to the plow and sown with wheat. These measures have met with only limited success after some initial good harvests. More recently the government has placed emphasis upon the second alternative, intensification of agriculture through wage incentive programs and greater use of fertilizers to increase yields.

COLLECTIVIZATION

In the Tsarist period agriculture was closely tied to the institution of serfdom. Land was owned either by the state, the gentry, or the church. Peasants worked the land for the owners and were

TABLE 36-3. Changes in the Urban Proportions of the Population in the Republics and Selected Regions of the U.S.S.R., 1939-1959

Area	Per cent urban—1939	Per cent urban—1959	Absolute increase (in millions)
U.S.S.R.	32	48	40.0
R.S.F.S.R.	33	52	25.0
Central Industrial Region	43	61	4.3
Central Chernozem Region	14	27	0.9
Urals Region	34	56	5.2
Western Siberia	30	53	2.9
Eastern Siberia	36	52	1.8
Far East	50	70	1.8
Ukraine	34	46	5.0
Donets-Predneprovsk	50	66	3.4
Southwestern Region	21	29	1.4
Byelorussia	21	31	0.6
Uzbekistan	23	34	1.2
Kazakhstan	28	44	2.3
Tselinnyy Kray	16	31	0.6
Georgia	30	42	0.7
Azerbaijdzhan	36	48	0.6
Lithuania	23	39	0.4
Moldavia	13	22	0.3
Latvia	35	56	0.5
Kirgizia	19	34	0.4
Tadzhikistan	17	33	0.4
Armenia	29	50	0.5
Turkmenia	33	46	0.3
Estonia	34	56	0.3

SOURCE: *All-union Census of Population, U.S.S.R., 1959.*

farm labor and are primarily responsible for the process of rural depopulation.

There are, however, still regions where the rural population has been increasing. Most of these are found in the East: Kazakhstan, Central Asia, and the Far Eastern Region. The Virgin and Idle Lands Program, began on a large scale in 1954, was applied to such areas as northern Kazakhstan and parts of Siberia. As a result of the extension of cultivated land in the latter regions, thousands of people from European Russia were induced to move and to work on such projects. Between 1954 and 1958, for example, more than 500,000 people,

mostly members of the Young Communist League (Komsomol), were recruited and sent to collectives in the Virgin Lands area.

AGE AND SEX STRUCTURE OF THE SOVIET POPULATION

The pyramid showing age and sex structure of the population (Fig. 36-2) allows another insight into the demographic disaster caused by the terrible events in twentieth-century Soviet history. In the age groups 35 years and older the ratio of males to females is skewed. For these groups the current

pending on the climate—are grown in all parts of the Soviet Union. Potatoes are most important in the cooler and damper regions of the north, except where the shortness of the growing season prohibits them. Green fodder, used to feed dairy cattle, is grown in the same areas, although corn for silage and other fodder crops have spread to many regions of the country in the recent drive to increase livestock production. Since 1950 the area under fodder crops has increased by 47 million hectares.

It is an interesting comment on the climatic influences on Soviet agriculture that the area under winter cereals is almost exactly the same today as it was before the Bolshevik Revolution, but that the extent of spring-sown cereals has increased by 30 per cent. The period of rapid expansion of cropland has largely passed, and the remaining

unused cropland is marginal. Expansion in agricultural production in the future must be achieved by the more intensive use of present cropland. At the time when the policy of collectivizing agriculture was begun, crop yields were on average lower than almost everywhere in Europe. They are still very far from being the highest, but there has been a great improvement in every branch of agriculture. Winter wheat yields per acre are more than double those of the pre-1950 period. Spring wheat, planted in general on poorer soil and grown under less-favorable conditions, has increased its yield by more than 20 per cent. The diminution of the yield of spring wheat in very recent years is due in part to poor seasons, in part to the inclusion of more of the low-cropping marginal lands. The increase in corn cultivation and yields, great since 1950, has been achieved partly if not

TABLE 36-5. Total Crop Area in the Union Republics (In Thousands of Hectares)

Republic	1913 (present boundaries)	1940	1950	1961
R.S.F.S.R.	69,665*	91,955	88,882	121,723
Ukrainian S.S.R.	27,952	31,117	30,656	33,935
Byelorussian S.S.R.	4,542	5,212	4,913	5,873
Karelo-Finnish S.S.R.†	133	110	70	.....
Estonian S.S.R.	697	918	813	783
Latvian S.S.R.	1,396	1,964	2,413	1,596
Lithuanian S.S.R.	1,890	2,497	2,294	2,456
Moldavian S.S.R.	2,072	2,057	1,895	1,892
Georgian S.S.R.	748	907	914	778
Azerbaijdzhan S.S.R.	962	1,124	1,057	1,131
Armenian S.S.R.	346	434	471	411
Kazakh S.S.R.	4,194	6,831	7,885	28,570
Turkmen S.S.R.	318	411	368	464
Uzbek S.S.R.	2,166	3,014	2,773	3,037
Kirghiz S.S.R.	640	1,056	1,061	1,207
Tadzhik S.S.R.	494	807	837	763
Total	118,215	150,414	146,303	204,619

* One hectare = 2.47 acres.

† The Karelo-Finnish S.S.R. was, in 1956, downgraded from the status of a full republic to an autonomous republic within the R.S.F.S.R.

SOURCES: *Narodnoye Khozyaistvo SSSR*, 1958, 1959, 1961.

ratio of males to females is 3 to 5. The import of this ratio is seen in the fact that females make up nearly 52 per cent of the Soviet labor force. The 35-39 and 40-44 male age groups were those eligible for combat in World War II, and military deaths account for their small numbers. The indentation shown in the graph for the 10-14 and 15-19 age groups, born from 1940 to 1945 and 1945 to 1950, reflect the depressed birth rates of the war years and the depressed period following the war. These latter groups have begun to move into the labor force and there has already been some speculation about a labor shortage. The age for military registration has already been lowered by the Soviet government from 18 to 17.

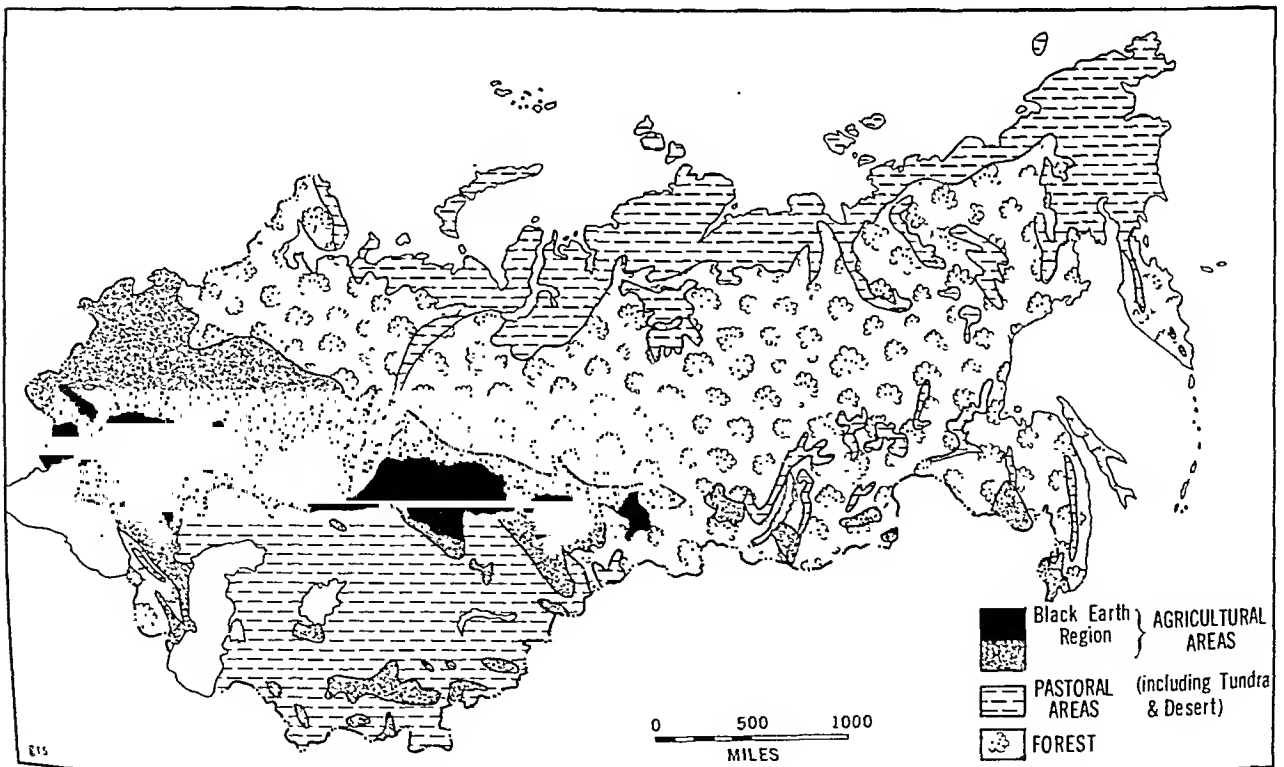
Agriculture

By far the greater part of the area of the Soviet Union is unsuited to agriculture. Over the tundra and much of the taiga the winters are too severe

and the growing season is too short for most farm crops. In the Caspian Lowlands and most of the Central Asian Lowlands the climate is too dry and in much of the area the soil is too saline for crops. Where the summers are warm enough and the summers sufficiently long, agriculture nevertheless faces severe handicaps. Soils developed on the boulder clay of the European north are in the main podsolic and poorly drained. It is not surprising then that only about 10½ per cent of the land area of the Soviet Union is arable.

The only part of the Soviet Union which affords good-quality farmland and is intensively cultivated is a wedge-shaped belt, based in the west on the Polish and Romanian borders and tapering eastward for some 3,000 miles to terminate at the foot of the Altay and Sayan Mountains. In terms of landforms, it conforms with the plains of southern Russia and the more southerly part of the glaciated plain; its eastward extension lies across the northern margin of the Central Asian Lowland

FIGURE 36-3. Generalized land-use regions of the U.S.S.R.



PRIVATE PLOT AGRICULTURE

The discussion of agriculture has so far been primarily concerned with patterns in general or with the *kolkhoz* and *sovkhoz*. "Private-plot" agriculture, or farming on the small garden lots of the Kolkhniks and others,¹ plays an important role in the Soviet economy. Although these plots account for only 3.2 per cent of the total sown area, they provide a disproportionate share of the agricultural produce. In 1960, they produced 63 per cent of the nation's potatoes, 46 per cent of the vegetables, 41 per cent of the meat, 47 per cent of the milk, and 81 per cent of the eggs. These figures seem to point out one of the weaknesses of collectivized agriculture—the lack of incentive for peasants to produce when gains are not directly returned to them.

AGRICULTURAL AREAS OF THE U.S.S.R.

The Dairy and Hardy Grain Belt. Extending from the northern section of the Ukraine north to Leningrad and narrowing east to the Yenesei River stretches the region of dairying and hardy grain crops. Here also is the extensive potato and flax area of the Soviet Union. The hardy grains include rye, barley, oats, and acclimatized species of wheat. Dairying is especially concentrated near such large urban centers as Moscow and Leningrad. The greatest concentration of sheep and pigs is found here, utilizing forest pasture as well as supplementary grain feeding. Potato cultivation has recently been promoted on a larger scale in the Baltic area, and rye and barley are now being grown as far north as 65° latitude. The European section of the belt is divided mainly into collectives of relatively small size, and in the east, larger farms are found, with more state farms.

Most serious problems in the area are related to climate, as growing seasons are relatively short and become progressively shorter to the north.

¹ In some parts of the country industrial workers and *sovkhoz* workers also have the right to a small garden plot.

Soils are podzolic and require care and fertilization for continued production.

Sugar Beet Belt. The Sugar Beet Belt is set as separate unit because of its rather specific concentration areally and because of its importance in the Soviet economy. The belt straddles the Dairy and Coarse Grain Belt and the Wheat and Corn Belt, lying almost exclusively in the three republics of the Ukraine, White Russia, and the R.S.F.S.R. Some beet production is also found in southeastern Central Asia and even in the western sections of the Baltic States. The absence of a sugar cane region explains the importance of the sugar beet in agriculture. Livestock raising plays a part in this area, utilizing the forage afforded by the plant after processing. Cyclic drought problems are present, although they are not nearly as much a hazard as in the grain regions to the east.

The Wheat and Corn Belt. The Black Earth Region, or triangle, reaching from the western borders of White Russia and the Ukraine and the shores of the Black Sea east to a narrow strip at Irkutsk, is delineated as the Wheat and Corn Belt. The long-known "Breadbasket" of Russia has produced wheat since Tsarist days, and more recently corn has been added in the hope of building a grain-livestock complex. Most of this region is organized into collectives of relatively small size, but to the east and in the Virgin Lands Region, larger farms and *sovkhozes* dominate.

Spring wheat forms a northern rim to the winter-sown wheat area which follows the Black Sea coast in the region of milder winters. Spring wheat is exclusively sown east of the Volga River. Cattle concentration is especially heavy in this belt, as would be expected with excellent fattening feeds available. A rather important area of pig raising is also noted especially on the eastern Black Sea border.

Sunflower cultivation overlaps heavily into this region and extends onto the Caucasus and east of the Volga River, occupying the fringe areas. Periodic droughts plague this belt and have caused near-disastrous results in the past. Problems of

allowed to cultivate a limited amount for themselves. Areas allotted to the peasants were held and worked communally in the system known as *obshchina*. Emancipation in 1861 brought little relief. Initially land was sold by the gentry to the peasant "Mir" or village as a whole, and each member was assessed his share of the debt. The level of peasant agriculture was abysmally low. Primitive methods of cultivation, the three-field system, and the strip system of communal land allocation resulted in inefficiencies and low yields. The Stolypin Reforms, a series of legislative acts enacted between 1906 and 1911, were an attempt to loosen the hold of the Mir on the peasant, promote enclosure of fields, and establish a free-enterprise agricultural pattern on the Russian landscape. War and revolution, however, intervened. After the Bolshevik Revolution of 1917 the large estates of the privileged were seized by the peasants or broken up by the government and given as small farms to the peasants. The socialization or collectivization of agriculture was begun in 1928 but did not reach a high pitch until the thirties. The small peasant holdings were reabsorbed into large farms and all land ownership was claimed by the state. The theory, which was for many years contradicted by the practice, was that these large "communally" owned farms could be mechanized and their labor needs reduced without adverse affects on agricultural production, while manpower, thus liberated from the land, would be absorbed by industry. From the start the new farms were of two kinds. The *kolkhoz* was a large farm, in which the government leased the land to the peasant members in perpetuity, and they, in turn, cultivated it cooperatively and returned a portion of the crop to the state. Mechanical equipment was formerly supplied to them for rent by "machine-tractor stations," and the profits of the *kolkhoz* were distributed among the peasants who cultivated it. In addition, the collective members were allowed to own and cultivate small garden plots. The *sovkhoz*, by contrast, was entirely state-owned. The workers were hired laborers, who retained no rights in the land. The *sovkhoz* had its own plant and equipment, was often directed by a trained agronomist, and com-

monly specialized in a particular branch of agricultural production. The *sovkhoz* was far better suited to any agricultural enterprise that necessitated a large capital investment. Much of the irrigated cotton growing of Turkestan and the newly plowed virgin lands of Kazakhstan are on *sovkhozes*.

The present tendency is for *kolkhozes* to increase in size but to diminish in number. On average the *kolkhoz* now has nearly 300 families as against fewer than 100 before the Second World War. The total area cultivated in *kolkhozes* has increased only very slightly in recent years, and the great expansion of agricultural land—cropland increased by 34 per cent between 1950 and 1961—has been in the *sovkhoz*. Presently, however, 70 per cent of national sown area is under the *kolkhoz* system, as opposed to 29 per cent in the *sovkhozes*. The increase in the size of the farming unit is leading to the abandonment of the scattered farm buildings and the small villages, and to their replacement by "agro-towns." One of the chief aims of the Soviet government is to remove the existing differences in the living levels between the urban and rural workers, the latter being the poorer. Although this has not yet been achieved, progress is being made.

CROP PRODUCTION

Presently in the Soviet Union more than 500 million acres of land is under crop cultivation, of which more than a third is under wheat. In fact, two-thirds of the total is devoted to grain crops.

The Black Earth Belt is excellently suited to the cultivation of cereals. Wheat dominates. In general it is spring-sown, but fall-sown wheat is important in the southern half of the Ukraine and in the plains bordering the Caucasus. The chief crop in the Virgin Lands Region is spring-sown wheat, and the recently opened areas are devoted almost exclusively to this grain. Rye is the second grain crop. Though it is grown within the Black Earth Wheat Belt, it is most important along the northern fringe of the latter and spreads northwards through the poorer soils of the forest belt.

Potatoes and fodder crops—the variety de-

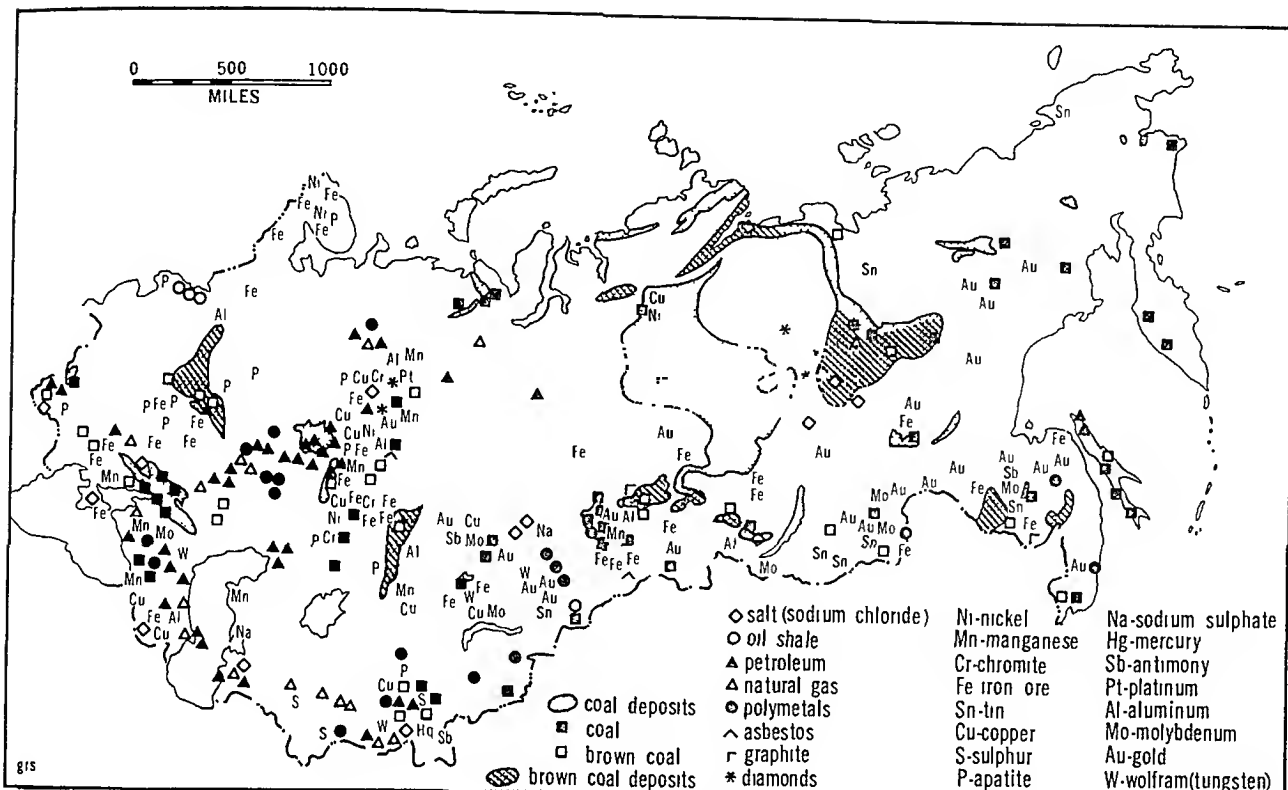


FIGURE 36-4. Distribution of major minerals in the U.S.S.R.

coking coal) is from the Donbas in the Ukraine, and 9 per cent from the Moscow region. Thus, over half the production is from European Russia. The Asiatic coalfields, so much richer in their total resources, but poorly located in relation to the older centers of industry, are now of rapidly growing importance. The Ural and Pechora Basins yield about 15 per cent, and the Kuzbas, opened up only in the 1930s, another 15 per cent (25 per cent of the coking coal). The richest fields in eastern Siberia still yield the smallest amount of coal.

Petroleum. The sources of petroleum are more narrowly located, and since they can be exhausted within a short period, the geographical pattern of petroleum production is liable to quite rapid changes. There are only two important petroleum-producing areas: the Caucasus and the southern Urals-Volga region, and the Second Baku. Small quantities are obtained from the Ukraine, the

Emba Basin of Kazakhstan, Turkmenia, Kirghizia, and northern Sakhalin (Table 36-7). The Soviet Union is, however, well endowed with petroleum, having over a fourth of the world's proven reserves.

At first the Caucasus fields, which are actually a series of small basins along the northern and southern flanks of the mountain chain, were the biggest producers, and the port of Batumi, on the Black Sea coast, became the world's leading petroleum port. For a generation now the Caucasus has been diminishing in importance as the fields become worked out. In the late 1940s the Caucasus region was overtaken by production from a wide producing area which reached from the middle Volga Valley along the western flanks of the Ural Mountains. This field now produces about three-quarters of the Russian output, and its share of the total has, in recent years, been increasing rapidly. A pipeline has now been completed from the Volga-Ural producing area westward to

largely by the use of superior imported strains. The yield of cotton has more than doubled, and that of sugar beets has increased almost as much.

Irrigation plays a relatively small role in Soviet agriculture. This is due in part to the lack of large rivers in the areas where irrigation would be most beneficial, and in part to the huge capital investment necessary to bring areas under such a system. Presently, a little over 18 million acres is irrigated, 80 per cent of which is in Central Asia. Irrigation is very important in Central Asia, but little used elsewhere. Soviet plans call for more extensive irrigation projects in Kazakhstan, Central Asia, and the Ukraine.

LIVESTOCK FARMING

Livestock farming has made very much less progress than crop farming, and in fact, the number of farm animals, reckoned in livestock units, has only since 1950 surpassed prerevolutionary levels. There are several reasons for this. In the first place, farm stock suffered severely during the period of intensive collectivization, when the peasants even slaughtered their animals to prevent them from falling into the hands of the government, and again during the Second World War.

The livestock population has only recently recovered from the latter.

The distribution of farm animals is very similar to that of both population and superior farmland. They are most numerous by far in the Ukrainian and Central Asian Regions. Dairy cattle are spread more deeply into the northern forests than crop farming and they are also relatively more important on the dry pastureland which borders the Caspian Sea. Sheep are found throughout these areas, and are more numerous than cattle in the Volga, north Caucasus, Kazakhstan, and Central Asia, where conditions are generally too dry for cattle. The pig population is relatively small, and is found mainly in the more densely settled areas, where domestic and farm waste form their principal food. Horses have diminished greatly in number with collectivization, and today there are a good deal less than a third of the total before the revolution.

The improvement of the livestock program in the U.S.S.R. has been a hotly pursued project of the government which has met with some success. As mentioned previously, fodder acreage has more than doubled since 1950. In the same time period, meat production has doubled, from 4.4 million tons to 8.4 million tons, while milk production has increased 60 per cent.

Hay mowing on the steppe of Kazakhstan. Note the windbreak in the background.
(Sovfoto.)



have seen, much of the Soviet Union is floored with rocks of great geological age. The Soviet Union claims to be the largest producer of no less than half a dozen of the important metalliferous minerals, and to be self-sufficing in all.

Iron ore remains the most important metal under present industrial and technological conditions. The largest reserves and the bigger part of the Soviet output are in European Russia and the Ural Mountains. There are extensive deposits in Kazakhstan and small deposits along the mountainous borderland of Central Asia, but so far no large or significant discoveries have been made in Siberia. This is surprising in view of the geological history of this region, but much of it is still little known.

The Krivoi Rog ores of the Ukraine were among the first to be exploited and remain the most important. They were opened up in 1881, and have since supplied a large part of the Soviet smelting industry and, in recent years, also much of that of her western neighbors. The ore is relatively high grade and can thus bear the cost of distant transportation more easily than most others. The grade (i.e., metal content) of the ore is declining, but the reserve may be expected to supply ore, though of diminishing quality, for a very long period of time. The second most important source of ore is the Ural Mountains. Here the most famous source is Magnitogorsk, a mountain of high-grade magnetite in the southern Urals. This has been intensively worked, and it is now estimated that it will be exhausted by 1980. On the other hand, there are numerous other ore bodies in the region, many of them very much larger than Magnitogorsk, though containing ore of lower grade.

These two sources have in recent years provided over 80 per cent of the iron ore produced in the Soviet Union, but attention is now being turned to other sources which may in time replace them. Foremost among these are at Kerch in the eastern Crimea; at Kursk in European Russia, where there is a very large deposit of magnetite, much of it of fairly low grade (32 to 33 per cent iron) and technically difficult to mine; in the Kola peninsula in the extreme north of European Rus-

sia; and above all in Kazakhstan, where at Kustanay large reserves have been discovered of ores of medium grade (37 to 50 per cent iron). The significance of the location of iron ore will be discussed later.

NONFERROUS METALS

The Soviet Union is known to be a very large producer of nonferrous metals, though data on the volume of production are difficult to obtain and highly unreliable. Published statistics, not generally of Soviet origin, attribute to the Soviet Union the production of nonferrous metals in the amounts given in Table 36-8. Manganese deposits of the Soviet Union amount to nearly a third of the world's known reserves. In addition to these metals, for which there is some statistical information, copper, lead, zinc, tin, and the metals used in steel alloys were also extracted in quantities at least sufficient for Soviet needs.

The nonferrous ores of the Soviet Union appear mostly to be concentrated in two highly mineralized areas: the Ural Mountains and the uplands of Kazakhstan (Fig. 36-4). The former is particularly important for its copper, nickel and bauxite, the ore of aluminum, and the latter for lead, zinc, and copper. Mineralized areas of generally lesser importance—though some of them are important sources of strategic metals—are the Kola peninsula of the northwest, in reality an extension into the Soviet Union of the Scandinavian Shield; the Ukraine, which contains the highly important manganese ores of Nikopol; the Caucasus, with a wide range of nonferrous min-

TABLE 36-8

Metal	Thousands of metric tons	Rank	Percentage of world production
Manganese	2,700	1	49
Bauxite	4,000	2	16
Tungsten	6,000	1	29
Nickel	60	2	20
Antimony	6	3	19

greater aridity and frost damage are accelerated on the fringe of the belt especially to the east and southeast.

THE COTTON-RICE BELT

The irrigated, arid, and semiarid sections of Central Asia produce the bulk of the cotton and rice in the Soviet Union. Waters from the Syr Darya, Amu Darya, and other oases irrigate fields for production of rice and the long-staple, Egyptian-type cotton. However, some dry farming methods are used, and wheat and alfalfa are rotated crops. Cattle and sheep are grazed on the semiarid grasslands and the summer pasture afforded by the nearby mountain slopes. Inadequate precipitation presents the greatest problem in this area as well as the irrigation-induced problems of salinity of soil and water.

THE EXOTIC AGRICULTURE BELT

The Exotic Agriculture Belt includes the Mediterranean areas of the Black Sea and the subtropical western fringe of the Caucasus. Crops grown include tobacco, tea, citrus fruits, sunflower, castor seed, and coffee. Sheep are the predominant livestock, with pigs of some importance. Livestock is mainly centered on the higher slopes of western Caucasus. Limited area for production is the major problem in this region.

Mineral Production

The agricultural resources of the Soviet Union are small for a country of its size. The same cannot be said of mineral resources. It is difficult to form an estimate of the resources even in minerals as well documented as iron ore, but the Soviet Union claims to have the largest reserves of any country in such important minerals as iron, copper, lead, and zinc ores, and to be self-sufficient in most others. The Soviet Union also claims to have more than half the world's coal resources and nearly half the reserves of iron ore. These claims may

be exaggerated, but we may be sure that the Soviet Union need not be dependent on other countries for the supply of fuel and most minerals.

MINERAL FUELS

This wealth of mineral fuel is not surprising in view of the country's geological history. Large areas are underlain by rocks of Upper Paleozoic age, the period when most of the world's bituminous coals were formed. Furthermore, much of the western part of the Soviet Union is covered, beneath its glacial deposits, by Upper Secondary and Tertiary deposits, which include very extensive deposits of brown coal and lignite; and the large deposits of peat of more recent origin are used in some northern areas of the Soviet Union. The geological conditions favorable to the accumulation of petroleum are found over considerable areas.

Coal. There are no regions of the Soviet Union except Byelorussia and the Baltic republics that do not contain coal reserves (Table 36-6), and in east Siberia resources are immeasurably large. Earliest to be developed were the small coalfields of the Moscow region and the larger deposits of the Ukraine. These supplied the earliest modern industrial development of Russia—the textile and engineering works of the Moscow region and the heavy industry of the Ukraine. They were followed by the small coal basins which border the Ural Mountain uplift and the less-extensive reserves of Central Asia and Kazakhstan. Then came the very much larger resources of the Kuznetsk Basin (or Kuzbas) in the West Siberian Region and the many scattered deposits which lie close to the Trans-Siberian Railroad. The most extensive deposits of all—those in the extreme north of European Russia and in east Siberia—have scarcely been touched. Climatic conditions will make their development extremely difficult and may, in fact, postpone it indefinitely.

The present coal production is about 510 million tons, including about 133 million tons of lignite. About 37 per cent (60 per cent of the

factories and power stations, the opening up of mines, and the extension of the transportation system. For a period in the eighteenth century Russia was the world's biggest iron producer and exporter. The metal came from the Ural Region and had been smelted with charcoal. During the nineteenth century this industry declined to negligible proportions, while a new industry, based upon the coal resources of the Don Basin, in the Ukraine, arose to take its place. The fuel and ore resources of the Don region, coupled with its nearness to the consuming centers of European Russia, gave it so great an advantage that it remains the most important center of the iron and steel industries in the Soviet Union.

Under the Soviet plans, the Urals industry was revived, though located this time in the southern Urals and based upon coal brought into the area from the Kuzbas coal basin 1,200 miles east and the Karaganda region 600 miles southeast. The Urals region is today not only second in importance among the iron-smelting and steelmaking regions of the Soviet Union, but falls only a little short of the Don Basin in production.

More recently a third center of iron and steel production has been developed in the Kuznetsk coal basin of western Siberia. Initially, iron ore was brought in large quantities from the Urals to supplement local ores, but recent ore discoveries in Gornaya Shoriya, south of the coal basin, are relieving this long-haul situation. Also, ores from eastern Kazakhstan are now brought in and utilized.

Other centers of the iron and steel industry account for no more than about 8 per cent of the total production. Steelmaking is more widely distributed than iron-smelting, and a number of works, especially in European Russia, use pig iron from the Ukraine or Urals and local scrap to produce steel. The Soviet iron and steel industry continues to expand, but despite an almost embarrassing wealth of fuel and ore, the problem of transporting raw materials to the factory and crude steel to the metal-using industries has presented very serious difficulties. Except in Ukraine, fuel resources are not in close proximity to the iron ore, and neither is particularly near the

centers of dense population. Transportation costs have represented an unduly large proportion of the total manufacturing costs, and it is difficult to see how they can be reduced in the near future.

THE METAL-USING INDUSTRIES

The metal-using industries embrace such diverse branches of industry as structural steel and machine tools, ships and automobiles, mining equipment and kitchen utensils. In general, these industries are strongly market-oriented; in other words, they are carried on most intensively in the more densely populated parts of European Russia. The Moscow and Leningrad regions have a broad-based industrial structure and carry on most branches of the metal industries. On the other hand, there has been some decentralization, particularly of the machine tool industries. Central and northwestern Russia, which once produced 80 per cent of the machine tools, now account for only 35 per cent. There are some cities with highly specialized engineering industries, such as Khar'kov, with its tractor and agricultural machinery industries, and Minsk, with its manufacture of ball bearings. The manufacture of railroad equipment is widely distributed in the larger cities of European Russia; of mining equipment, in the Ukraine, the Urals, and Central Asia; of textile machinery, in the long-established industrial centers near Moscow and in Central Asia. By and large, the metal-using industries are found within a triangle, with its base along the western boundary of the Soviet Union from Leningrad to Odessa and its apex near Chelyabinsk in the Ural Mountains.

THE CHEMICAL INDUSTRY

The manufacture of chemicals was very little developed before the Communist revolution, and has not received great emphasis since then. It still in all probability does not employ much more than 6 per cent of the industrial labor force, and represents a similar proportion of the total capital investment in industry. Current plans are to expand greatly the chemical industries, and to

TABLE 36-6. Coal Output in the Soviet Union (In Millions of Tons)

Republic	1913 (within the present boundaries)	1940	1950	1961
R.S.F.S.R.	6.04	72.8	160.2	293.2
Ukrainian S.S.R.	22.79	83.8	78.0	171.5
Georgian S.S.R.	0.07	0.06	1.7	2.7
Uzbek S.S.R.	.....	0.0	1.5	4.3
Kazakh S.S.R.	0.9	7.0	17.4	34.6
Kirghiz S.S.R.	0.1	1.5	1.9	3.4
Tadzhik S.S.R.	0.03	0.2	0.4	0.8
Turkmen S.S.R.	0.03	0.0	0.0	.....
U.S.S.R.	29.15	165.9	261.1	510.5

SOURCES: *Narodnoye Khozyaistvo SSSR*, 1958, 1959, 1961.

TABLE 36-7. Oil Output in the Soviet Union (In Thousands of Tons)

Republic	1913 (within the present boundaries)	1940	1950	1961
R.S.F.S.R.	1,295	7,039	18,213	134,540
Ukrainian S.S.R.	1,047	353	293	2,837
Georgian S.S.R.	.....	41	43	31
Azerbaijdzhan	7,669	22,231	14,822	18,704
Uzbek S.S.R.	13	119	1,342	1,709
Kazakh S.S.R.	118	697	1,059	1,700
Kirghiz S.S.R.	.....	24	47	422
Tadzhik S.S.R.	10	30	20	15
Turkmen S.S.R.	129	587	2,021	6,110
U.S.S.R.	10,281	31,121	37,878	166,068

SOURCES: *Naradnoye Khozyaistvo SSSR*, 1958, 1959, 1961.

Poland, where it branches, one pipeline continuing west to East Germany, the other dropping southward across the Carpathian Mountains to Slovakia and on to Budapest in Hungary.

The Soviet Union has also large reserves of oil shale, and since 1950 they have come to be widely exploited. Current production is largely from the deposits of Estonia and to a lesser extent from those of the middle Volga Valley. Most of the

known deposits, however, lie in eastern Siberia, and have been prospected but not yet opened up.

THE FERROUS METALS

It is in the metals that the mineral wealth of the Soviet Union stands out most conspicuously. Metalliferous ores are more closely associated with older rocks than with younger, and as we

Transportation

The problem of the economic development of the Soviet Union is basically one of transportation. The country is large and its resources scattered. The greater part of the population is found for climatic and historical reasons in European Russia; a large part of the mineral resources, much of the timber, and almost all the virgin agricultural lands lie in Asia. Productive areas are widely separated from one another by vast empty spaces. The problem of locating new industries resolves itself into one of reducing as much as possible transportation costs for raw materials and finished goods, and of placing the least burden possible on a transportation system which is already strained.

RAILROAD SYSTEM

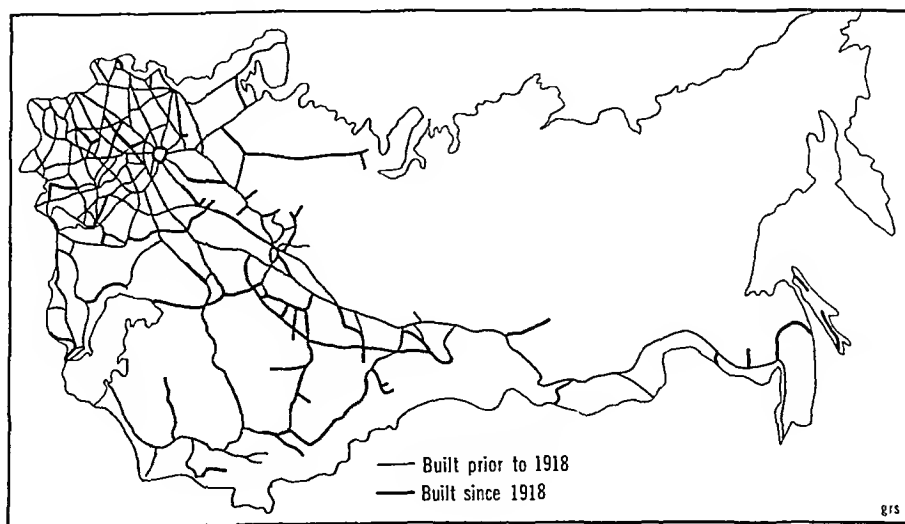
Since it was developed in the later years of the nineteenth century, the railroad net of the Soviet Union has carried the bulk of the internal commerce. The environment of the U.S.S.R. is admirably suited to the railroad: level unobstructed terrain makes for easy construction and movement, and the vast coal supply of the country

provides ample fuel. Throughout the whole period of planned economic development the railroads have handled more than three-quarters of the freight movement. European Russia can claim to have an adequate rail net, at least south of Moscow and Leningrad. The Northwest Economic Region (see pages 496-497) has only a skeletal system (Fig. 36-6). The western parts of the Soviet Union are linked rather tenuously with the Caucasus and the Urals, and east of the Urals the railroad net is very thin indeed. In fact, it amounts to little more than the Trans-Siberian and the Turksib lines and their branches and spurs, although a new central Siberian line is now under construction. Large areas of Central Asia are without railways, and none penetrate the great wilderness of northern and eastern Siberia.

ROAD TRANSPORTATION

Roads play only a small role in the internal movement of goods and people, and carry little more than one-twentieth of those transported by the railways. Most roads serve as feeders to the railways or as links between the cities and their immediate neighborhoods. The number of motor vehicles—most of them publicly owned—is small. The quality of the roads is not such as to en-

FIGURE 36-6. Railroad pattern of the U.S.S.R.



erals, and eastern Siberia, where most of the tin and significant quantities of copper, lead, and zinc are obtained. The pattern of nonferrous metal production is liable to rapid change. Some ore bodies are exhausted relatively quickly and new discoveries may be expected in the still relatively unknown regions of Asiatic Russia.

Manufacturing Industries

In Tsarist Russia, by the time of the Revolution, industrialization had made positive but unspectacular gains. Although lagging far behind western Europe, Russia was the fifth largest industrial nation of the world, ranking fourth in machinery production and third in textiles. Large-scale manufacturing was carried on in some of the cities of European Russia, in the coalfield area of the Ukraine, and in the Urals; but over the country as a whole the consumption of factory-made goods was very small, and most communities

depended for their household necessities upon local craftsmen. This pattern of production was not effectively changed until after the introduction in 1928 of the sequence of development plans that has already been mentioned. Employment in manufacturing, including mining, has risen from about 8 per cent of the total in 1928 to over 32 per cent today; at the same time the efficiency of labor has increased. New industrial regions have been developed alongside the older industrial centers, and in some significant branches of industry, such as steel production, the Soviet Union may today be the world's biggest producer. Each of the major branches of industry is discussed below, while in the last section of this chapter the economic regions of the country are described.

IRON AND STEEL

The Soviet planners regarded the iron and steel industries as basic to their program, because upon a supply of steel depended the construction of

FIGURE 36-5. Major industrial clusters and cities of the U.S.S.R.

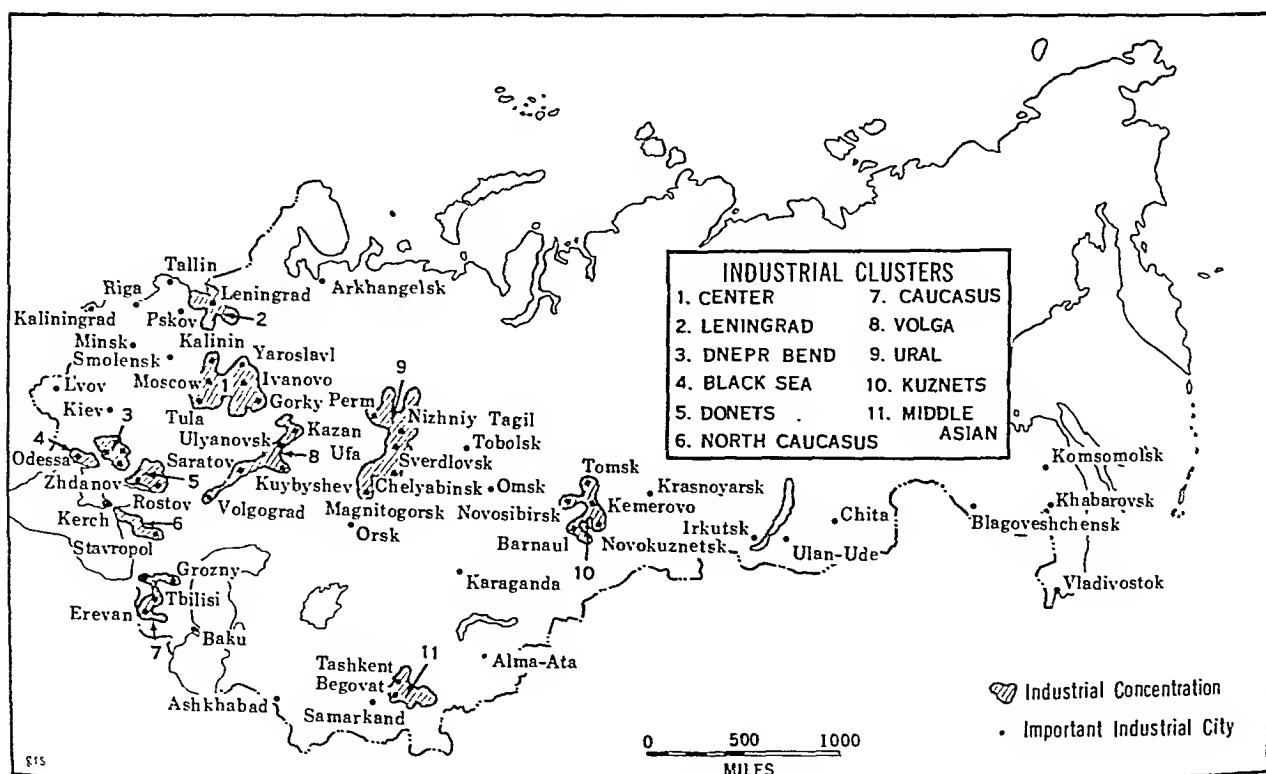


TABLE 36-9. Foreign Trade of the U.S.S.R., 1961 (In Millions of Rubles)

Item	Imports	Exports
Food, beverages, and tobacco	732.5	710.0
Fuels and lubricants	195.3	944.1
Other raw materials	893.7	1,006.6
Machinery and equipment	1,596.6	917.2
Other manufactured goods	1,698.7	1,184.0
Other goods	132.3	636.5
Total	5,249.1	5,398.4

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1961.

size of the Soviet Union and the range and variety of its resources make a policy of near self-sufficiency more nearly practicable than it would be in any other country treated in this book. At one time, during the early years of planned development, it was necessary to import large quantities of manufactured goods and fuel, necessary to equip and operate the newly established industries of the U.S.S.R. These imports have diminished greatly in amount, but the Soviet Union, like the industrialized countries of western Europe, finds that the more complex the industrial economy, the more dependent are industrial countries upon one another for factory-made goods. Machinery and equipment still account for almost a quarter of total imports. The Soviet Union claims that it can produce all the minerals and metals needed.

It does not do so, however, because in some instances it is cheaper to import them, and in others, the capital, labor, and technical skills are not available to exploit them.

A country with an overall population density as low as that of the Soviet Union might be expected to produce all the foodstuffs for which it is climatically suited. After 10 years of planned development the Soviet Union came close to this ideal, but during the past quarter century population has increased faster than agricultural production. Furthermore, the marginal farmland is all in areas climatically unreliable, and a good season may be followed—as has happened in recent years—by a series of disastrous harvests. This experience can be paralleled from the history of the United States. In the Soviet Union it has necessitated the import of grain on a large scale.

The Soviet Union has always required these imports primarily with the export of fuel and raw materials. Petroleum today makes up about a tenth of the total export, and ores and metals—primarily iron ore to the east European countries—about a sixth. Timber and timber products have at times been very significant exports but are today relatively small.

Though large, the volume of Soviet trade is quite small in relation to the population. In 1961 it was about \$54 per head, and 6 years earlier only \$33. That of West Germany was in the same year more than twice as great in absolute value and represented no less than about \$440 per head of the population. The volume of Soviet trade

TABLE 36-10. Foreign Trade of the U.S.S.R., in 1961 by Countries

	Imports from	Per cent of total	Exports to	Per cent of total
Communist bloc	3,405.2	65	3,561.2	66
Other European countries	861.9	16	876.9	16
U.S.A.	45.6	1	21.9	0
Rest of the world	936.4	18	938.4	18
Total	5,249.1	100	5,398.4	100

SOURCE: *Yearbook of International Trade Statistics*, United Nations, 1961.

increase in particular the production of fertilizers, which are much needed by Soviet agriculture. The chemical industry is located mainly in the older industrial centers, especially the Moscow region, the Ukraine, and the southern Urals.

THE TEXTILE INDUSTRY

The distribution of the textile industries has changed little in 40 years, and is still mainly carried on in the Central Region of European Russia, where it was first established in the nineteenth century. Nor has it been greatly expanded in the course of the planned growth of recent years. More than 70 per cent of the cotton, linen, and silk cloth is manufactured in the Central Industrial Region. The chief centers of cotton manufacture are Ivanovo, Moscow, and Vladimir. Before the revolution 50 per cent of the cotton fiber was imported, whereas today only 3 per cent is brought in. The manufacture of woollens is somewhat more widespread, but in this field also the Moscow region dominates. Linen, which is made from locally grown flax, is concentrated chiefly in Vladimir, Yaroslavl, and Kostroma, and synthetic textiles in Moscow and Ivanovo. It can thus be seen that the textile industry is more strongly concentrated than any other branch of Soviet industry.

THE FOREST INDUSTRIES

The Soviet Union has more extensive softwood forests than any other country, though many are low-grade and very difficult of access. The distribution of timber-using industries is heavily dependent on rivers for the floating of lumber to the sawmills and pulp and paper factories. The lumber is either milled, pulped, or used as fuel, the latter use being very important in the more remote areas of the forest belt. Most of the sawmills and pulp and paper factories are in European Russia and the Urals, where transportation is better developed and the demand greater. Siberia remains in this, as in so many other re-

spects, a vast storehouse of resources so far little used.

CONSUMER AND FOOD INDUSTRIES

This varied assemblage of manufacturing and processing industries is heavily concentrated in the areas of greatest population. The manufacture of leather goods and footwear, electrical goods, radio and television receivers, and furniture is carried on mainly in Moscow and the smaller towns of the central region. A large part of the food-processing industries—sugar refining, flour milling, meat packing, oil seed crushing—is carried on in the Ukraine and in the wheat belt which stretches eastwards. Dairy produce is processed in the mixed forest belt of European Russia; cottonseed and sunflower seed are crushed in the oasis region of Central Asia; beer is brewed in the Baltic provinces; and vodka is distilled almost everywhere.

The industrial base of the Soviet Union was laid in Tsarist times, and four of the great manufacturing clusters of today, the Center, Leningrad, Donbas, and Urals (Fig. 36-5), have strong roots in that period. However, the great industrial surge carried out in the country in the nearly 50 years of Communist rule must be acknowledged. The altered pattern of industrialization, involving the development of industry in previously rural areas such as Byelorussia and in formerly backward areas such as Central Asia, Kazakhstan, and Siberia, must be considered as a noteworthy accomplishment. Industrialization of the eastern areas, an early goal of the government, was given great impetus by World War II and the subsequent exploitation of minerals and manpower. The heavy industries and the machine-building industries have received great emphasis and today are second to none. However, much of this has been accomplished at a high price in terms of both money and *men*. One of the manufacturing facets still to be cultivated is the consumer industries, which according to all recent indications is next in line for attention.

The Economic Regions of the U.S.S.R.

37

The Soviet Union is constitutionally a federation which is divided into 15 constituent republics (Fig. 35-1). These divisions are based primarily on major nationality groups. Thus, Great Russians make up the overwhelming majority of the population in the Russian Soviet Federated Socialist Republic, Ukrainians in the Ukrainian S.S.R., and so on, with one exception, the Kazakh S.S.R., where the indigenous Kazakhs are in the minority. The smaller nationality groups are usually organized into autonomous S.S.R.'s, autonomous oblasts,¹ and national okrugs.²

Parallel with this administrative structure are the economic planning regions. The first economic regions in the Soviet period were delimited in the 1920s in connection with Lenin's electrification program (GOELRO). In 1940, the State Planning Commission (GOSPLAN) delimited 13 regions primarily for statistical reporting purposes. In 1963 a new set of economic planning regions was adopted which encompassed 18 regions and Moldavia, the latter not included in any of the major divisions (Fig. 37-1). Over this regional framework Soviet economic policy has been superimposed. The basic tenets of this policy are as follows: (1) economic activity should be distributed as evenly as possible throughout the Union, (2) the economy

¹ An *oblast* is the basic administrative unit of the republic, which might be compared to a state of the United States.

² The national okrugs are the lowest type of autonomous unit, found only in the R.S.F.S.R., and largely populated by minor ethnic groups.

courage the use of trucks and cars, and less than 10 per cent of the 168,000 miles of motor road are actually surfaced with concrete or blacktop.

RIVERS AND CANALS

A century or two ago rivers provided the most used means of transportation. The radial pattern of the rivers of European Russia made it possible to traverse the country in most directions, with only short portages between one river basin and the next. Some of the western rivers remain of great importance, and canals have been cut to replace the portages which formerly linked them together. East of the Ural Mountains, however, the situation is difficult. The rivers of Central Asia are mostly short and seasonal in their flow, and evaporate away into the desert. The great northern rivers, which, with their gentle gradient, ought to be easily navigable, are frozen for much of the year, in flood during late spring and early summer, and flow to the empty Arctic Ocean, where their mouths are open for navigation for only a few weeks in summer. The result is that these rivers are used for little more than floating timber downstream.

The rivers of European Russia, however, are much used, and carry more freight than the roads. The Volga River forms a highway from near Moscow to the Caspian Sea, with dams near Gorkiy, Kuybyshev, and Volgograd to maintain the river level and facilitate navigation. A short canal connects the Volga at its southwestern bend with the eastern elbow of the Don, and thus links the Volga Region with the industrial Ukraine. The Kama and Oka, tributaries of the Volga, have been made navigable, and the upper Volga is itself linked by canal with Lake Ladoga and thus with the port of Leningrad. The same waterway has been joined by way of Lake Onega with the White Sea.

The more westerly rivers—the Dvina, Niemen, Dnestr, and Dnepr with their tributaries—are all navigable for a considerable part of their courses, but have not been linked by canal with the Volga-Don waterway system. Plans are afoot, however,

to canalize the Pripet, a tributary of the Dnepr, and to link it with the waterway system of Poland.

AIR TRAVEL

The Soviet Union, with its immense distances, would appear to be a country admirably suited for transportation by air. Air travel has scarcely begun to compete with rail, although in 1961 the Soviet national airline, Aeroflot, carried 21 million passengers (6 per cent of the passenger traffic of the country). The airline is little used for conveying freight. Aircraft are used chiefly to reach the remote areas not yet served by rail. The aircraft and terminals are in every instance government-owned, and are geared to the needs of government, with a strong concentration of air routes on Moscow. In recent years there has been a considerable expansion of service to foreign areas, a trend which will undoubtedly continue.

PIPELINES

The Soviet Union for a long while has been a pioneer in the use of long-distance pipelines for the transportation of petroleum and natural gas. The earliest was that from the Baku oil field to the Black Sea port of Batumi. In recent years pipelines have been constructed from the Caucasus oil fields to the Donbas, and from the Urals oil field to both the Kuzbas and Moscow. A pipeline has recently (late 1963) been completed from the Urals oil field across White Russia and Poland to East Germany. Pipelines now carry over 40 per cent of the petroleum and petroleum products of the Soviet Union and the economic plans call for heavier service in the future. An important reason for this building activity is the urgent need to take some of the strain off the railroads.

Shipping and Trade

It has been the policy of the Soviet Union for very many years to reduce as far as possible its dependence on other countries for manufactured goods, foodstuffs, and raw materials. The great

18 per square mile. The largest proportion of the population is found in the southwest corner, centered on such cities as Leningrad, Novgorod, Pskov, Cherepovets, and Kaliningrad. The only important population centers in the north are Murmansk (237,000), the ice-free port on the Kola peninsula, and Archangelsk (271,000) on the White Sea. Both cities are connected to the more populous southwest by rail and are serviced by the Baltic-White Sea Canal.

The industrial core of the Northwest Region is focused on Leningrad (3,607,000), founded early in the eighteenth century as St. Petersburg by Peter the Great. It was the gateway through which this Westernizing Tsar hoped to bring into Russia the more advanced culture and technology of the West. It became the capital of the Russian empire and remained so until the center of government was transferred in 1918 to Moscow. Leningrad was established in the marshy valley of the river Neva, about 3 miles above its entry into the Gulf of Finland. Despite the difficulties of the site, its liability to flood, and the many small waterways which branch from the Neva, it was a well-planned and well-built city. As the chief outlet of Russia toward the west, it quickly grew in size and importance. Trade was drawn to it, and industries were established, including metallurgical and textile. During the Middle Ages the towns of Novgorod and Pskov had been the meeting places of Russians and traders from the west. Functionally Leningrad has replaced them, though they remain of local importance.

The Leningrad subregion has few industrial raw materials. There is little solid fuel, which causes heavy dependence on hydroelectric power generated from the Svir, Syas, and Volkhov Rivers. The region is today one of the chief Russian shipbuilding centers. Nearby Kronshtadt is the primary naval base. Mechanical and electrical engineering industries are carried on, and textiles, chemicals, and paper are made. The metallurgical industries are now supported by the recent development of a steelmaking complex at nearby Cherepovets which utilizes Kola iron ore and Pechora coal.

Considering the Northwest Region as a whole,

its major contributions to the Soviet economy include metalworking and machine tools (nearly 10 per cent of the country's total), commercial lumber (26 per cent of the total), leather goods and textiles, and fish products. These figures suggest the contrasts found in the region; an extractive, raw-material-producing economy in the north and northeast, and an urban manufacturing economy in the southwest, centered on Leningrad.

THE BALTIC REGION

During the eighteenth century the small window which Tsar Peter had opened toward the West was thrown wide open. Finland, the Baltic provinces, and a large part of Poland were absorbed into the Russian empire where they remained until 1918. The victories of the German armies in Russia gave many of the border peoples the opportunity to revolt, including the people of Estonia, Latvia, and Lithuania. These republics remained independent and fairly prosperous until August, 1940, when their territories were re-incorporated into the Soviet Union as separate Soviet Socialist Republics. Their land is low and hummocky. The relief derives from the loops of terminal moraine and the rounded protuberances of boulder clay, known as "drumlins." The soils vary from heavy clay to light and permeable outwash sands and gravels. Many lakes occupy hollows in irregular morainic cover, and other depressions have been filled to form marsh. The ancient vegetation was mixed woodland, with the hardwood deciduous species gradually giving place to the softwood coniferous. Grass and fodder crops grow well. Grain crops, particularly rye and oats, are grown, but the climate is marginal for wheat cultivation.

Estonia is the most northerly, the smallest, and in the accepted opinion, before 1940 the most progressive of the three Baltic States. The Estonian people are akin in origin to the Finns, and their language resembles Finnish. The majority of the population is engaged in agriculture. A large part of the land is under meadow and pasture, and the country is climatically suited to dairy farming, which is conducted on much the same lines as in

is at present increasing sharply but, in both absolute and relative terms, is unlikely to approach that of western and central Europe. A feature of the trade of the Soviet Union, and also of its partners in COMECON (page 92), is the approximate equality of the value of exports and imports. This arises from the fact that most trade is the result of barter agreements negotiated between the Soviet Union and each of its trading partners.

The Soviet Union carries on most of its trade

with a very small number of countries. In 1961, about a quarter was with China and over half with the Communist countries of eastern Europe. These groups of trading partners have maintained for several years very approximately their present share of an expanding Soviet trade. Outside the members of the Communist bloc, including China, the greatest volume of trade, about 15 per cent of the total, has been with the industrial countries of western Europe.

population density for the region as a whole is about 88 per square mile. Nearly 60 per cent of the population of Estonia and Latvia is urban, whereas in the more agricultural republic of Lithuania, less than 40 per cent of the inhabitants reside in cities.

BYELORUSSIA

The Byelorussian Republic, or White Russia, was expanded westward in 1939 to include a part of Polish territory. Physically Byelorussia is an area of undulating glacial moraines in the north which merges into a low marshy depression in the south-east and south-central portion of the republic. Here, the valley of the Pripyet River, like many of the valleys of Poland and Germany, was probably cut by the streams which escaped from the melting ice during the Ice Age. The depression that was cut at this time has since accumulated silt, and a labyrinth of lakes and marshes has formed. These are the Pripyat (or Polesye) marshes, a wilderness of forest, marsh, and stream. Villages lie on small islands; their inhabitants travel in shallow boats. It is a region only recently touched by the technical developments of the twentieth century.

As early as the end of the nineteenth century the Poles and Russians had begun reclamation measures in their respective sectors of the great swamp, but little progress was made before the Soviets occupied the region in September, 1939. It has, in a sense, been a "natural frontier" which armies have always tried to avoid, keeping either to the hills on the north or to the open corridor south of the marshes.

Byelorussia is basically an agricultural region, which is reflected in the fact that nearly 70 per cent of its 8 million people live in rural settlements. Rye, barley, potatoes, flax, and fodder crops make up the primary agricultural products, with hog raising and dairying becoming increasingly important. Manufacturing activity is concentrated almost exclusively in the few major cities of Byelorussia. Minsk (570,000), the capital, Vitebsk (150,000), and Gomel (184,000) grew up on the ancient routeway which followed the rivers

and joined the Baltic with the Black Sea. They lie also on the routes developed in more recent times between Germany and the Moscow area. In these cities many industries have been developed, including woodworking, engineering and machine tooling, textile and chemical manufacture. In fact, over 10 per cent of the metal cutting tools produced in the U.S.S.R. are manufactured here, attesting to the recent Soviet effort to develop the more backward areas. There are, however, no fuel reserves except the local peat and timber, and rivers are too sluggish for hydroelectric power to be important. As a result, a large proportion of the necessary industrial fuels must be obtained from other regions.

THE CENTER

The Center is the heart of European Russia; it contains the nucleus of the Russian State, and is the most densely peopled and the most highly urbanized and industrialized of the Soviet regions, with nearly a quarter of the population of the Soviet Union and over a quarter of its industrial labor force. It is a region of glaciated plain and low hills from which rivers radiate in all directions, and where the taiga, the broad-leaved forest, and the steppe meet.

At its center lies Moscow (*R.* Moskva), the capital of the Soviet State. It lies in the triangle formed by the upper course of the Volga and of its tributary the Oka, and is on the Moskva River, a tributary of the Oka. Moscow lies where the deciduous forest thins away. To the north is the coniferous forest and to the west the mixed woodland; to the south, the trees give way gradually as the steppe is approached.

The nucleus of the early town was the fortress, or Kremlin, lying high above the steep riverbank. The town which grew around it was walled; it spread beyond its fortifications, was again walled, and has spread yet farther in modern times beyond its confines. It remained the capital of Russia except from the early eighteenth century until 1918, when St. Petersburg was the capital. Its political importance led to the building of a radiating pattern of railways, and these in their turn made



FIGURE 37-1. Major economic regions of the U.S.S.R. (based on 1963 changes).

ought to promote development of backward regions, (3) transport costs ought to be minimized by establishing industries as near as possible to raw materials and markets, and (4) regional specialization should be promoted in areas where conditions such as raw materials or skilled labor are favorable for such development.

In order to provide more detailed insights into the spatial patterns of economic activity of the huge land mass of Russia, it is convenient to use a regional breakdown. In this chapter the current economic regions, with some modifications, provide a useful frame of reference for a regional description of the country.

THE NORTHWEST REGION

The Northwest Region consists of a wide zone of country extending from the Finnish border on the west to the drainage basin of the Pechora River on the east. The Kola peninsula and Karelian area have been subjected to glacial erosion, whereas

all other sections of the northwest are covered with marsh, moraines, and till left by the glaciers. The region extends through three natural zones beginning with a small section of tundra on the Arctic coast, opening into a wide swath of taiga, and extending into the mixed forest in the south. Forests in fact cover nearly half of the area and forestry is an important economic activity here. Agriculture, restricted by short growing seasons, poor soils, and drainage problems, consists mainly of hardy cereals, vegetables, and fodder crops. Dairying is important in the more southerly areas, especially near Vologda.

Mining is of some importance in the region. Iron ore, nickel, and apatite are found in the Kola peninsula, and coal is drawn from the deposits of the Pechora Basin near the town of Vorkuta. In addition, deposits of bauxite, oil shale, and natural gas are exploited on a small scale.

The Northwest Region is sparsely populated; this huge region contains less than 11½ million people and has an average population density of

The labor force alone exceeds 4 million and accounts for nearly 20 per cent of the total for the country. About a fifth of the total value of Soviet industrial output originates here.

THE CENTRAL CHERNOZEM REGION

The Central Chernozem Region lies entirely within the R.S.F.S.R., bounded on the north by the Center Region and on the south by the Ukrainian Republic. Physically, the Central Chernozem Region occupies a segment of the Great Russian Plain in a zone of transition where the wooded steppe grades into the true grassland steppe of the south. Thus, in the northern portion of the region grey-brown forest soils are found, while chernozem soils predominate in the south and particularly the southeast.

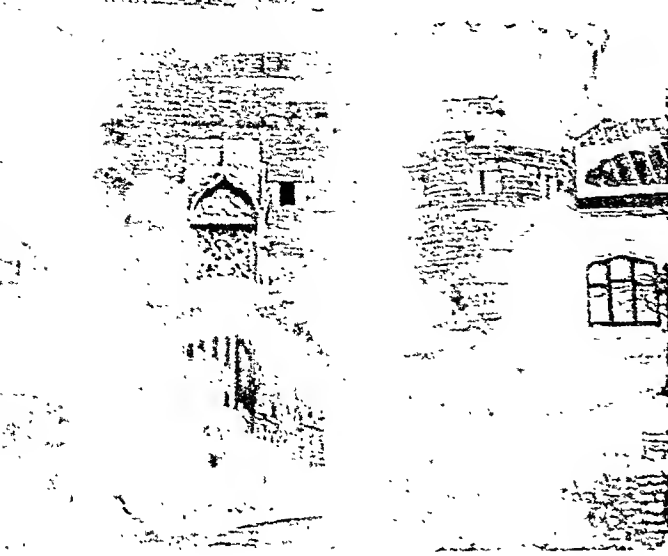
In contrast to the highly industrialized and urbanized Central Region to the north, the Chernozem Region is predominantly a rural agri-

cultural area. More than 65 per cent of its 9 million people are classified as rural. Despite the rural nature of the population, densities are relatively high, exceeding 100 persons per square mile throughout the region. Main agricultural endeavors include the cultivation of small grains and potatoes in the north, and wheat, sunflowers, and corn in the southern black earth sector. Livestock raising, particularly pigs and sheep, is also an important facet of the area's economy. The recent Seven-Year Plan, in fact, calls for less attention to grain cultivation and increased emphasis on a dairy and beef cattle economy.

Mineral resources of the region are comparatively few and insignificant on the national level, with the exception of the iron-bearing quartzite deposits (Kursk Magnetic Anomaly) in Kursk Oblast which were mentioned in connection with the Center Region (page 500). Although a few mines are now operating, full exploitation of these ores awaits future efforts. Manufacturing indus-

A small rural village on a collective farm in the northern Ukraine. (G. J. Demko.)





The medieval gates of the city of Tallin, capital of the Estonian Republic and an important port on the Baltic Sea. (G. J. Demko.)

Denmark. Before the war, dairy produce was one of its most important exports. The damp, cool climate also favors the cultivation of flax.

Tallin (298,000), formerly called "Reval," is the capital and largest city of Estonia, as well as an important port on the Baltic. It lies on the southern shore of the Gulf of Finland, and though not completely ice-free in winter, its large harbor is generally accessible to large vessels. It has industries based upon the timber and dairy products of Estonia. The production of cotton textiles is also of importance. Tartu (*G*: Dorpat), a smaller city, is the site of one of the most distinguished universities in eastern Europe.

Estonia has little mineral wealth except the oil shales which are mined in northern Estonia and from which oil is extracted.

Latvia is largely the valley of the lower Dvina, at whose mouth lies Riga (607,000), a city and port of German origin and bearing many evidences of the German culture that once was dominant here. Once a member of the Hanseatic League, it later served as one of the outlets for Tsarist Russia, and now under Soviet rule, it is being developed as one of the U.S.S.R.'s major outlets to the west. It has textile, machinery, shipbuilding, and timber industries and formerly exported the dairy produce, flax, and timber from its hinterland. Latvia resembles Estonia in its predominantly agricultural economy.

Lithuania is even more agricultural than its northern neighbors. Before 1940 it was more

backward, its degree of agricultural specialization was less, and its trade was smaller. Much of its agriculture was on a subsistence basis. Today the predominant agricultural activity is livestock raising, and much of the sown area is under fodder crops.

For almost the whole period of its recent independence, Lithuania carried on a feud with Poland, arising from the Polish seizure of Vilna (or Vilnyus). The Russians have returned the city to the Lithuanians as a concession to the national pride of the latter; it is now a city of 255,000. Kaunas (*R*: Kovno) is the second city of Lithuania, and was its capital while Vilna was in Polish possession.

In 1945, Russia annexed the northern part of East Prussia, including Kaliningrad, which had formerly been the German port city of Königsberg. It was before the war a city of about 370,000 inhabitants. It contained a famous university at which the German philosopher Kant was a professor; it was a foremost center of German culture in eastern Europe. Most of its German population has left and its population has been reduced to 202,000. It has not been absorbed into the Lithuanian S.S.R., which it adjoins, but is a part of the R.S.F.S.R. For planning purposes it is treated as an outlying part of the Northwest Region.

The population of the Baltic republics was a little over 6 million in 1961, accounting for less than 3 per cent of the total for the U.S.S.R. The

adopted. Currently, a large proportion of the steppe is under cultivation. Cereal cultivation accounts for about 66 per cent of the sown land in the Ukraine. Wheat, winter-sown over most of the region but spring-sown in the areas farthest inland from the Black Sea, is still the most important crop. The area under permanent grass and fodder crops has been increased in recent years in connection with the government plan to develop a thriving dairy-meat economy in the Ukraine. Sugar beet is very important in the northwest, and corn is increasingly important in the more humid parts of the region. Animal husbandry is considerably more important than a generation ago.

Along the Black Sea coast and in the eastern Ukraine the total rainfall drops below 16 inches, and the cropland merges into the drier steppe of the North Caucasus Region. Here, sunflowers, vineyards, and sheep grazing are somewhat more important than the cereal grains. In the extreme south, on the southern tip of the Crimean peninsula, tobacco, grapes, fruits, and vegetables are grown.

Moldavia is almost exclusively an agricultural republic. Primary emphasis is on grain cultivation (especially corn), livestock raising, and viticulture. A large proportion of the country's vineyards are located in this tiny republic.

The Southwestern Economic Region, or the central and western parts of the Ukraine, are predominantly agricultural. Factory industries are chiefly those most closely associated with the surrounding agricultural country: the manufacture of agricultural machinery and of fertilizers, flour-milling, and the preparation of other agricultural products. One of the largest cities is L'vov (436,000) which is now a center of engineering and other industries related to agriculture. In addition, oil and natural gas deposits near L'vov have prompted industrialization there. Kiev, on the high western bank of the Dnepr, is now one of the largest cities in the Soviet Union. It had a population before the war of about 850,000, and by 1961 it exceeded a million. The city was seriously damaged during World War II but has been rebuilt with large and wide thoroughfares, parks,

and apartments. Kiev is one of the oldest and historically most interesting cities in Russia. Its origin in the early Middle Ages has been mentioned (page 456). For centuries it was exposed to the attack of Tatar and Mongol tribesmen from the Asiatic steppe and was on more than one occasion captured and sacked. It later became the capital of the Ukraine and is today a transportation center and industrial city, with a wide range of metallurgical, mechanical, and consumer-goods industries.

The Southern Economic Region takes in the strip of the Ukraine along the Black Sea coast from the Rumanian border to the Sea of Azov, including the Crimean peninsula. Odessa (667,000) is the major city of the region and the chief grain-exporting port of the U.S.S.R. It was not founded until late in the eighteenth century, but does not, like most other Russian ports, lie at the mouth of a river. The coast here is flat, and the harbor is liable to silting and is far from ideal. It suffers very little from icing in winter, and may be regarded in fact as a year-round port. Other important cities of the region include Kherson (174,000), a port city at the mouth of the Dnepr River where shipbuilding is a major activity, and Nikolayev (242,000), also a port city.

The Donetsk-Predneprovsk Region in the eastern Ukraine is more industrial than agricultural. It is more highly mineralized, and contains the most intensively used of Soviet iron-ore deposits, the high-grade ores of Krivoy Rog as well as the poorer ores of Kerch, and also the most important reserves of manganese ore. The coalfield of the Donbas once yielded the greater part of the Russian coal production. This proportion has declined with the opening up the coalfields of the Urals and west Siberia, although it still produces about 37 per cent, and is by far the most important Soviet coalfield.

Heavy industry was established in this region in the latter years of the nineteenth century. An Englishman named Hughes erected the first modern blast furnace at Yuzovka, a town named in his honor. After a period when, as Stalino, it was dedicated to the memory of Joseph Stalin, it is now the industrial city of Donetsk (701,000). The



Posters in downtown Moscow exhort the populace to carry out the decisions of the Twenty-second Communist Party Congress. (G. J. Demko.)

possible the easy carriage of goods and the development of industries. Under the Bolsheviks, Moscow again became the capital, and its development as an economic and administrative center was rapid. In 1926 its population was 2 million; by 1939 it had risen to more than 4 million; and it exceeded 6 million by 1961. Its varied industrial development began in the nineteenth century, when its present network of railways was in large measure constructed. Moscow is itself the center of this region.

The tremendous industrial development of Moscow and surrounding cities is primarily the result of factors other than raw materials and fuels. Deposits of low-grade brown coal in the Moscow Basin and in the Tula area have provided fuel for power generation, but heavy dependence is still placed on imported coal from the Donets Basin of the Ukraine. In the past, limited amounts of iron ore have been mined near Tula, but discovery of the quartzite iron ores near Kursk will have an important impact on the region.

Moscow is far and away the most important industrial city of the Center Region, indeed of the entire country. Its industries are widely diverse, including precision engineering, steel, chemicals, transport equipment, machine tools, textiles, and many more. Moreover, it is the administrative headquarters for the entire country, the center of the publishing industry, and the cultural heart of the Soviet Union. Its continued rapid growth has placed a heavy strain on the construction and service industries, resulting in a partial ban on migration into the city.

Other cities in the Center Region have under-

gone similar, although somewhat less spectacular growth and industrial development. Ivanovo (352,000) produces a large part of the Russian output of factory-made textiles. Kaluga (145,000) and Ryazan (240,000) make agricultural machinery. Kalinin (279,000) and Kolomna (124,000) make railroad equipment; and Yaroslavl (433,000), Vladimir (167,000), and Serpukhov (111,000) have textile, chemical, and engineering industries.

Not only has the region a developed railway network, it also uses the transport facilities offered by the Volga and its tributary the Oka. Moscow has recently been linked with the Volga by a canal. An old canal between the upper Volga and the Volkhov, which flows into Lake Ladoga, has been rebuilt and enlarged and has facilitated waterborne communications between Moscow and Leningrad.

Agriculture is practiced over most of the region, though only along its southern margin are the most suitable conditions for farming met with. On this side the region includes an area of chernozem, the fertile black soil of the steppe. To the north the quality of soil deteriorates, passing through good forest soils into the infertile podzols of the north. The north is more intensively cultivated than physical conditions would appear to justify because of the huge local demand for foodstuffs. Dairy farming and the cultivation of vegetables are very important, and wheat—much of it spring-sown in the north of the region—and other grain crops are grown.

The Center Region is indeed the core of the Soviet Union. More than 25 million people live and work here, nearly 70 per cent in urban places.

makes aircraft and automobiles and has important oil refineries. With the discovery and rapid exploitation of the oil and gas deposits of the Volga-Urals area, most of the Volga cities have become refinery centers, and associated chemical industries are rapidly developing.

In terms of industrial development and potential, the Volga Regions are the most promising. The vast fuel base in the form of oil and gas of the "Second Baku" combined with the excellent transport facilities of the region give reasonable assurance of growth. In addition, on the Volga two enormous dams have been built near Volgograd and Kuybyshev, and a third dam is projected near Saratov. These are used not only to deepen the channel and to improve navigation, but also to generate power and to conserve water for irrigating the arid southern parts of the region.

NORTH CAUCASUS

The North Caucasus Region extends from the Ukraine and Volga Regions south to the main range of the Caucasus. It is a lowland region—the Manych Depression—which rises gently southward to the Stavropol Uplands, and culminates in the Caucasus. Most of it is dry steppe, passing eastward into semidesert and desert, with areas of drifting sand dunes. It is primarily an agricultural region, with wheat, corn, and sugar beets predominating in the western portion. In the drier eastern section sheep raising is the major activity, with transhumance practiced on the northern flanks of the Caucasus.

In the extreme northwest, around the head of the Sea of Azov, lies the urbanized and industrial region which contains the eastern part of the Donbas. Rostov-on-Don (645,000), the largest city in the region, lies at the head of the delta of the river Don, and engages in heavy metallurgy and the manufacture of agricultural machinery. Taganrog (214,000), on the coast to the west, has iron and steel industries (see page 504). Shakhty (201,000) and Kamensk are coal-mining centers. An irregular line of cities, including Krasnodar (343,000), Maykop, Stavropol (121,000), Ordzhonikidze (175,000), Groznyy (270,000), and Makhachkala

(129,000), follows the border of the plain and the mountains. Some, particularly Makhachkala, Groznyy, and Krasnodar, are centers of the declining Caucasian oil field. Others have food-processing and engineering industries.

TRANSCAUCASIA

The Caucasus Mountains consist of several closely placed ranges trending from northwest to southeast. Their crest ranges from 9,000 to considerably over 12,000 feet, and there are no easy routes across the mountains. At their extremities they drop steeply to the sea, and although there are practicable routes along the coast, there is no coastal plain.

The mountains are well forested, although large areas lie above the tree line. The topography is rugged in the extreme, and movement within the mountains is difficult. There are many upland valleys which are in practice cut off from the outside world.

South of the Caucasus Mountains a region of hills and sheltered plains stretches southward to the mountains of Armenia. A range known as the Little Caucasus lies parallel to the Caucasus, with which it is joined by the hills about Tbilisi. Valleys broaden eastward and westward to the Caspian and Black Seas between the two ranges. The Caucasus Mountains protect this region in some measure from the intemperate winters of the steppe. The Black Sea coast is mild, frosts are rare, and Mediterranean fruits and flowers flourish. In the short distance of some 200 miles one passes from the icy winters of the steppe, experienced on the shores of the Sea of Azov, to the warmth of the coast of Georgia.

The climate of the more easterly valley is more extreme. Winters are cold, though much shorter than in the steppe. Summers are hot and moist enough for corn and cotton to ripen. The vine is grown, and in parts the hill slopes support tea plantations. The wines of Georgia and cognacs of Armenia are famous throughout the Soviet Union.

Animal raising is more important in this region than in most other parts of the Soviet Union. Sheep and goats are reared on the drier grasslands,

tries have been only weakly developed and only in the few large cities of the area. Voronezh, a city of nearly half a million population and the most important urban center, is noted for the manufacture of machines and machine tools, chemicals, and automobile tires. Kursk (222,000) and Tambov (186,000) have food-processing and chemical industries; Lipetsk (183,000) contains a heavy metallurgical industry as well as chemical and machine building plants.

THE UKRAINE AND MOLDAVIA

The Ukrainian S.S.R., which accounts for three of the Soviet economic-planning regions—the Southwestern, Southern, and Donetsk-Predneprovsk Regions—and Moldavia¹ are treated here as a large regional unit. The region lies to the south of the glacial margin, and large portions of it have been covered with loess. Most of it is also low-lying and flat or rolling, rising into low hills along the northern and western margins. In the extreme west the region includes the small area of the Carpathian Mountains and of the Hungarian Plain, taken from Czechoslovakia in 1945. In the south, it also includes the mountains of the Crimea. Across the plain from west to east is a belt of low and rather inconspicuous uplands, formed of Paleozoic rock which actually outcrops at intervals. It brings the coal of the Donbas to the surface, contains the iron ore of Krivoy Rog and the manganese ore of Nikopol, and gives rise, where the Dnepr cuts across it, to the rapids of Dnepropetrovsk.

In general, summers are hot and winters cold. Average annual precipitation rarely exceeds 25 inches in any part of the Ukraine, and to the east and southeast the rolling steppe becomes drier and poorer, eventually passing into the scrub desert of the Caspian Basin. The original natural vegetation of the Ukraine was grassland, with light woodland along its northern and western margins.

When during the early Middle Ages trade developed between the Baltic and the Black Sea, many of the commercial centers were established on the great Russian rivers, the Dniestr and Dnepr, where these crossed the steppe. This urban growth was cut short by the invasion of the Tatar peoples from Asia. For nearly a thousand years the steppe was a frontier zone, where settled life was dangerous and difficult, where travelers moved only in convoy and outlaws found a life of freedom and danger. The Cossacks, who later inhabited parts of the region, were a group of frontiersmen, outcasts from the settled life of the forest zone. The Russia of the Tsars advanced slowly into the steppe. Peter the Great actually seized but had to relinquish the port of Azov at the mouth of the Don. But during the eighteenth century the Russians gradually wore down the opposition of Cossacks and Tatars, established ports on the Black Sea coast, and absorbed the Ukraine into Russia.

The people of the Ukraine speak a Slavic language akin to Russian. It is, however, a distinct language and serves as a bond of union among the Ukrainian people. They have, in the past, shown little sympathy with the Russian people and, in fact, in the early days of the Communist revolution actually established a short-lived, independent republic. But it succumbed to the attacks of the Red Army and Poles, and the greater part of its territory was absorbed as an S.S.R. into the Soviet Union.

Economically the Ukraine is one of the most developed parts of the Soviet Union. Much of the steppe has been under cultivation since the early nineteenth century. Its wheat was exported through Odessa long before the grain of the American prairies entered the market of western Europe. Odessa grain prices in the mid-nineteenth century controlled wheat prices in most of the world's markets. This long period of cultivation has not been without its ill effects on the soil. Despite the very high value of the black earth, the fertility has been greatly diminished. Some areas are severely "gullied," and in many areas erosion has become a serious problem. It is said that remedial measures, including contour plowing, have been

¹ The Moldavian S.S.R. is essentially the former province of Bessarabia which was taken from Rumania and added to the Soviet Union in 1940.

their lower slopes forested, the higher ground passing through woods of dwarf trees to a stony waste. They are far from steep, and at many points they are crossed by railways and roads. The Ural Mountains form a divide between the Volga and Pechora drainage on the west and the Ob and Irtysh on the east but are a divide in no other respect. They are of similar age and structure to the mountains of Bohemia and central Germany and are also highly mineralized. Iron-ore reserves are extensive and of a fairly high grade. Copper, lead, and zinc also occur in veins, together with manganese, nickel, wolfram, asbestos, chromium, bauxite, and other metals of lesser significance. The occurrences of coal are limited to the younger rocks which appear on each side of the Ural Mountains. They are small but of considerable local importance. Petroleum deposits, on the other hand, are extensive, particularly in the western slopes of the southern Urals.

The Ural Region includes the wide southern and the narrow central divisions of the mountains, together with an extensive belt of lowland on each side of the range. The climate is more extreme than in the regions examined so far. A belt of dry steppe wraps around the southern Urals, and is planted with cereals—chiefly wheat—or grazed by sheep and cattle. The whole north of the region is part of the coniferous forest belt, and contributes significantly to the Soviet timber industry.

The northern Urals were the scene of the biggest iron-smelting industry of eighteenth-century Europe, based on the local ore and charcoal made from the softwood forests. This industry declined during the nineteenth century, and was replaced by a modern smelting industry in the southern Urals. The Ural region now supplies about a third of the Soviet pig-iron production and more than a third of the steel. Local coal is generally unsuitable for blast-furnace use, and the Ural industry is obliged to rely heavily on the distant coal-fields of the Kuzbas and Karaganda. Reserves of iron ore are widely distributed in the Ural region, and smelting and steelmaking industries are similarly scattered. The most important centers are Serov (102,000), in the north of the region; Nizhniy Tagil (355,000), Sverdlovsk (832,000),

Pervoural'sk (101,000), Kushva, and Alapayevsk, in the center; and Magnitogorsk (328,000) and the new works at Novo-Troitsk in the south. The high-grade ore deposit which has hitherto supplied ore for the Magnitogorsk works and also for the Kuzbas works is reported to be nearing exhaustion, and it appears that it is being supplemented with ore from Kustanay, in Kazakhstan.

The manufacture of special steels and machinery is important in the Ural region, especially at Chelyabinsk (733,000) and Zlatoust (166,000). Nonferrous smelting is also important, particularly of copper, aluminum, lead, and zinc, and chemical industries, especially those associated with the smelting industries, have also been developed.

MIDDLE ASIA

The Middle Asian Region, more commonly called "Central Asia," consists of four republics, the Turkmen, Tadzhik, Uzbek, and Kirgiz. It is a thinly peopled region, made up mainly of mountains and desert. High mountains, the Kopet Dag, the Hindu Kush, the Alai, and the Tien Shan, enclose it on the south and east. Through the region flow the exotic Amu Darya and Syr Darya Rivers, both of which empty into the Aral Sea. Between the Amu Darya and the Caspian Sea is the sandy desert of Kara Kum; to the northeast of the Amu Darya, the no-less-inhospitable desert of Kyzyl Kum. Oases border the mountains and extend a long finger down the Amu Darya and Syr Darya to the Aral Sea.

This is, apart from small areas in Transcaucasia, the only area of the Soviet Union where subtropical crops may be grown. It produces most (90 per cent) of the Soviet Union's cotton and much of its rice, all from irrigated fields. Half the cropland, which is itself only about 5 per cent of the total area, is under cotton. The rest is sown with rice, corn, fodder, and grain crops. The mountain foothills in the southeast are covered with loess and provide a limited fertile area for grain cultivation. Some of the unirrigated areas provide rough grazing, but much of the region has no economic use.

The region as a whole is thinly peopled, though

iron-smelting and steelmaking centers are concentrated on the western part of the coalfield, in part because this is nearer the ore deposits of Krivoy Rog, but primarily because the better-quality coking coal is found here, and served to locate the earlier works. Apart from Donetsk, the chief iron and steel centers are today Makeyevka (381,000), Lugansk (300,000), Yenakiyevo, Druzhkovka, Kadiyevka (191,000), and Kramatorsk (123,000). More recently, smelting, steelmaking, and steel-fabricating works have been established off the coalfield, at Krivoy Rog near the ore field; at Dnepropetrovsk (707,000), Dneprodzerzhinsk (203,000), and Zaporozhe (475,000), between the ore and the coal; at sites on the coast of the Sea of Azov, easily accessible to the Kerch ores which are brought in by sea; and at Zhdanov (310,000) and Taganrog (North Caucasus Region).

Much of the steel made in the Ukraine is used in the numerous and varied engineering and other metal-using industries. These are spread widely through the eastern Ukraine, and are by no means limited to the heavily industrialized Donbas. Khar'kov (976,000), about 150 miles to the northwest, is a center for the manufacture of machinery, and Nikolayev on the lower Bug and Kherson, near the mouth of the Dnepr, have shipbuilding industries, as mentioned above. Rostov-on-Don, just across the border in the North Caucasus Region, has machinery industries.

This industrial region depends mainly on coal for power, but the Dnepr has been harnessed at Dneprostroy, where the river cuts across the ridge of older and harder rock a few miles above the city of Zaporozhe. The dam was destroyed during the German invasion but has since been rebuilt.

In sum, the economic significance of the three economic regions which make up the Ukrainian S.S.R. can hardly be understated. Here is located 20 per cent (approximately 43 million) of the population of the Soviet Union, nearly half of them classified as urban. Not only is this area the major granary of the country but also a major source of manufactured products and raw materials: 33 per cent of the nation's coal is mined here, and 52 per cent of the pig iron and 40 per cent of the steel are manufactured.

THE VOLGA REGION

The Volga Region, which encompasses two economic planning regions—Volga-Vyatka and the Volga Region—lies within the R.S.F.S.R. astride the Volga River. It is an irregularly shaped region, extending down the river from Gorkiy to its mouth, and embracing much of the valleys of the left-bank tributaries, the Kama and the Vyatka, and also part of the Don Valley. It is a lowland region, covered in the north by boulder clay and outwash and in the south by loess. Its latitudinal range is over 900 miles, a considerable climatic and vegetational range. The rainfall varies from over 16 inches in the north to less than 8 near the Caspian Sea, and the vegetation changes from mixed forest, through deciduous forest and grassland, to semidesert and desert along the lower course of the Volga.

The Volga Region has an even balance between agriculture and industry, although the latter is rapidly becoming the more significant. Much of it belongs to the wheat-growing steppe, but in the dry south animal husbandry—especially of sheep—becomes important, and in the north dairy farming and fodder crops gain the ascendancy.

The Volga River, navigable throughout, forms a kind of highway through the entire region. For centuries it provided the main route from European Russia to Central Asia, and the trading cities established along its banks have grown into large industrial nodes. The largest of these, as one descends the river, are Gorkiy (1,003,000), Kazan (693,000), Ul'yanovsk (226,000), Kuybyshev (863,000), Syrzan (157,000), Saratov (622,000), Volgograd (632,000), formerly known as Stalingrad and before that as Tsaritsyn, and Astrakhan (313,000), the port and fishing center of the Volga delta. These cities each have engineering industries, closely related in many instances to the agriculture of the surrounding steppe. The more northerly among them have woodworking industries, and all process the agricultural products—the grain, skins, and hides—of their surrounding regions. Gorkiy is now one of the largest and most varied of the great industrial cities of Russia. It has engineering, textile, and chemical industries; it

A street scene in the native quarter of Bukhara. Much of the color of ancient Turkestan is still preserved in the more remote cities of Central Asia. (G. J. Demko.)



desert; only across the north is the rainfall sufficient for agriculture. Here is a belt of dry steppe, with chernozem soil, into which the wheat-cultivating Russian peasant advanced at the end of the nineteenth century, driving the native cattle herder before him. In recent years agriculture has been intensified in northern Kazakhstan, which appeared to offer more virgin lands for the farmer than any other region. Much of the land now being plowed is marginal, cropping well in the wetter years but failing disastrously in the drier. This is an area where rainfall is highly unreliable. Despite environmental drawbacks Kazakhstan has become an important granary, competing with the Ukraine and Western Siberia in the production of wheat.

Southern Kazakhstan is more like Central Asia, made up of desert and sand dunes, with agriculture only along the edge of the mountains and the banks of the rivers. The largest of these is the Syr Darya, which makes its way, like the Amu Darya, to the Aral Sea.

The future of Kazakhstan may well be with its minerals rather than its agricultural resources. The uplands of Kazakhstan are highly mineralized. At Karaganda is a coalfield, opened up in the 1930s and capable of producing coking coal for the smelting industries of Soviet Asia. Iron ore occurs at Atasuskiy, a hundred miles south of Karaganda, and a smelting and steel works has recently been established at Temir-Tau, accessible to both. In northwest Kazakhstan are the iron-ore

deposits of Kustanay, now being used to feed the industry of the southern Urals. Nonferrous mining has been developed, and copper, lead, zinc, nickel, and chrome are obtained from mines widely scattered through northern Kazakhstan, from Aktyubinsk in the west to Ust-Kamenogorsk in the east. In addition to this varied mineral wealth, petroleum is now being obtained from an oilfield around Gur'yev, at the northern end of the Caspian Sea.

The capital and largest city of Kazakhstan is the oasis town of Alma-Ata (508,000), situated at the foot of the Tien Shan range and only 140 miles from the boundary of China. Other oasis towns, including Chimkent (171,000), lie in the mountain foothills. The industrial-mining city of Karaganda (441,000) lies on the high plateau of central Kazakhstan, but other large cities and much of the population are found in moister northern Kazakhstan, where the Trans-Siberian Railway and its branches provide communication. Here are the rapidly growing cities of Petropavlovsk (140,000), Tselinograd (114,000), formerly Akmolinsk, and Semipalatinsk (177,000), each with its machinery, chemical, and food-processing industries.

WESTERN SIBERIA

Western Siberia consists of the vast lowland (see page 466) bounded on the north and west by the Ural Mountains and in the east by the Yenisey



A view of the city of Tbilisi, capital of the Georgian Republic. (G. J. Demko.)

and cattle in the mountain meadows. This is one of the few areas where transhumance—the seasonal movement of stock up and down the mountain sides—is still practiced.

Petroleum is obtained in the Kura Valley, and the town of Baku (968,000), joined by pipeline with Batumi on the Black Sea coast, is an important producer. Production here has been declining in recent years, although about 12 per cent of the country's petroleum and a similar percentage of the natural gas are still produced. Metalliferous mining is carried on, and the rivers of the Caucasus are being made to provide hydroelectric power. South of the Caucasus Mountains industries have generally deeper roots. The drying and preparation of tobacco and the spinning and weaving of silk and wool are traditional occupations. But the minerals and the small coal reserves have permitted a newer and more varied range of manufactures to be superimposed upon the older.

The trough which separates the Caucasus from the Little Caucasus comprises in the west the

Soviet Socialist Republic of Georgia, in the east that of Azerbaidzhan. In the hills to the south is the Armenian Republic. The whole Transcaucasian Region is one of great racial mixture. Its peoples are more closely akin to those of Turkey and of Iran than to the Russians.

The largest city of Transcaucasia is Tbilisi (724,000), set in the valley which separates the Caucasus from the Armenian Mountains. Kutasai (128,000) is the largest city of the Georgian Plain to the west; Kirovabad (116,000), of the Azerbaidzhan Plain. Within the Armenian Mountains lies Kirovakan, and on the margin of the interior plateau, within a few miles of the Turkish boundary, are Yerevan (558,000), at the foot of Mount Ararat, and Leninakan (108,000).

THE URAL REGION

The Ural Mountains, the traditional boundary of Europe, have little of a boundary nature. The mountains consist of a series of roughly parallel ridges,

Omsk (630,000), Barnaul (338,000), and Tomsk (269,000). All of these cities have developed from administrative service centers for their surrounding agricultural areas into important industrial nodes.

EASTERN SIBERIA

The East Siberian Region is the remotest frontier of the Soviet Union. It has the longest, coldest winters; its growing season is the shortest; its surface features are the most rugged; and paradoxically its mineral resources are among the richest. Geologically, it is a shield of the oldest rocks, in part covered by rocks of intermediate geological age, which contain among other resources the richest coal reserves of the Soviet Union. The region, except for lowlands along the Arctic coast and the wide valleys of the Yenisey and Lena Rivers, is hilly or mountainous. Most of it covered with coniferous forest, which passes northward into the tundra bordering the ocean. Only along its southern margin does it contain broken patches of steppe.

This is one of the least populous and least developed of all the planning regions of the Soviet Union. Its vast forests are still the haunt of the seminomadic native peoples. Their lumber resources have scarcely begun to be exploited, and over most of the area, mining has not got beyond the exploration stage. Most of the sedentary population live in a narrow, sinuous tract of land which winds its way, following its lifeline, the Trans-Siberian Railway, from Novosibirsk in west Siberia, through Krasnoyarsk (468,000), Cherekhovo (123,000), Irkutsk (380,000), and Ulan-Ude (188,000) to Chita (182,000), beyond which it enters the Far Eastern Economic Region. The only large city lying deep within the Siberian Plateau is Noril'sk (108,000), a nickel-mining town far within the Arctic Circle.

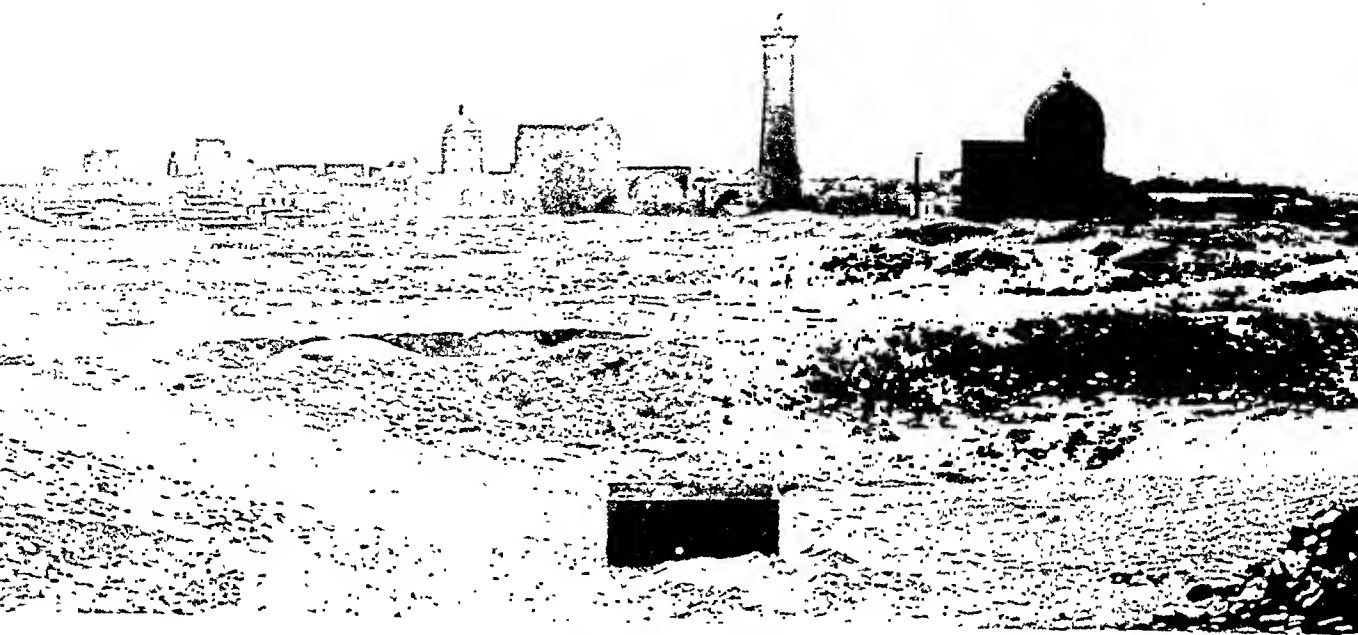
Agriculture is of necessity limited to quick-growing cereals and hardy fodder plants and vegetables; and even so, it is carried on only in the relatively populous belt of the south. The timber resources are immense and but little touched. Lumber from the western parts of the region is

floated down the Yenisey in summer to the lumber port of Igarka. Manufacturing industry is little developed and concentrated in the few cities of the south. Local demand is small, skilled labor is scarce, and transportation facilities to other parts of the Soviet Union are already severely strained. The chief manufacturing industries are engaged in processing the local products—lumber, food, and minerals—primarily for export to other parts of the Soviet Union. Recently, however, exploitation of bauxite deposits near Lake Baikal have led to the development of the aluminum industry in Irkutsk and Krasnoyarsk. The great dams on the Yenisey and Angara Rivers already provide adequate power for such activities and, considering future plans for hydroelectric projects, expansion should occur.

THE FAR EAST

In many respects the Far Eastern Region resembles the East Siberian. Proximity to the Pacific Ocean gives it a somewhat milder winter and a heavier rainfall along coastal areas, but it is even more mountainous and rugged. A belt of agricultural land lies along the Amur Valley, bordering the Chinese province of Manchuria. This agricultural strip, traversed by the Trans-Siberian Railway, produces hardy cereals and fodder. Most of the 4 million people of the region and all the larger cities lie in the Amur Valley: Blagoveshchensk, Khabarovsk (349,000), and Komsomol'sk (189,000). At Khabarovsk, the Amur River, after serving as the boundary between the Soviet Union and China, turns to the north and enters the Pacific Ocean opposite the northern tip of the island of Sakhalin. Above Khabarovsk, however, it receives its largest tributary, the Ussuri, whose valley extends southward between the Sikhote-Alin range and the mountains of northern Manchuria, and is followed by the Trans-Siberian Railway to Vladivostok. Vladivostok (317,000) is the only important Pacific port of the Soviet Union, but is frozen for up to two months in the year.

The Far Eastern Region is less endowed with minerals than east Siberia, except for the petroleum in northern Sakhalin. On the other hand,



The skyline of the ancient city of Bukhara with its characteristic mosques and minarets. Bukhara is located in the desert region of the Uzbek Republic. (G. J. Demko.)

the population is dense in the intensively cultivated oasis areas. The larger cities are found almost exclusively at the meeting of mountain and plain, where water is available for irrigation as well as for domestic and industrial use. Close to the Iranian border is Ashkabad (187,000). Along the eastern foothills are the ancient caravan towns of Samarkand (209,000) and Bukhara. Tashkent (971,000), the largest city in the whole region, is also the most industrialized, with machine-building and textile plants. In the intensively cultivated Fergana Valley are located Kokand (113,000), Andizhan (141,000), and Frunze (252,000).

Industrialization of Central Asia has been slow and based on the light industries, partly because of the comparative lack of industrial raw materials, partly because of the great distance of the Central Asian cities from the more important consuming areas of the country. Cotton textiles and chemical fertilizers have become the chief manufactures, the former using the locally grown

cotton, the latter supplying the fertilizers to grow it.

KAZAKHSTAN

The Kazakh Region conforms exactly with the republic of the same name. It is a thinly peopled and partly desert region. Physically it consists of the Kazakh Uplands, to the east the high mountains of Central Asia, and to the west the southern extension of the Urals and the lowlands which enclose the Aral and Caspian Seas. Most of the region is dry, decreasing from little more than 12 inches of rainfall in the north to 4 inches near the Aral Sea. Only along its northern margin are there rivers which make their way to the ocean, whereas the rest of the area is drained to the Caspian or the Aral Sea, to Lake Balkash, or to the small lakes which dot the region. Many rivers just evaporate in the sands after leaving the mountains. The south and east of the region are semi-

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River. In the south it reaches into the Alta and Sayan Mountains and for about 200 miles borders Mongolia. Most of it is a forested lowland, drained by the Ob and its mighty tributary the Irtysh. Its climate is severe in the extreme; summers are cool, except in the extreme south of the region, and winters are long and severe everywhere. Across the south of the region there stretches a narrow belt of steppe, bordered on the southwest by patches of semidesert, on the southeast by mountains, and on the north by mixed woodland, which quickly passes into the great northern forest.

Agriculture has crept eastward along the steppe and, as in northern Kazakhstan, is still being extended into land which is increasingly marginal. The wooded steppe is followed by the Trans-Siberian Railway, along which lie most of the important cities of the region.

The northern portion of the region has little economic value. Its softwood forests are worked, and lumber is floated down the northern rivers or transported overland to the nearest railhead. But the rigors of the climate in winter, the difficulty of any kind of movement, except by river, over the marshy land in summer, and the shortness of the growing season almost prohibit any kind of economic development.

In the south, however, where the land surface rises from the level plains of the Irtysh and the Ob, urban and industrial development has taken place. Here, in the valley of the Ob and of its

mountain tributaries is the Kuznetsk coal basin—the Kuzbas—estimated to contain about a tenth of the total coal reserves of the Soviet Union, and today second only to the Donbas in production. In the earlier Soviet planning, coal of the Kuzbas was intended to supplement the iron ore of the Urals, despite the long haul of 1,200 miles which separates them. Transport costs and other difficulties proved to be greater than were anticipated. Iron-ore deposits of the Urals, after long use, are becoming exhausted and difficult to mine, and the Kuzbas has been obliged to turn to a number of small and technically inadequate ore bodies nearer at hand. Now, however, it appears that an adequate ore base has been found near Gornaya Shoriya in the Sayan Mountains to the east, and, after a period of hesitation, the iron and steel industries of the Kuzbas are again expanding. The chief smelting and steelmaking center is Novokuznetsk (405,000), formerly known as "Stalinsk," though other mills are operating in Novosibirsk (963,000) and Guryevsk. Kemerovo (298,000) is primarily a coal-mining city although there are also chemical and metal industries there. Other centers of coal mining and metalworking in the Kuznetsk Basin include Prokopyevsk (292,000), Leninsk-Kuznetskiy (138,000), and Kiselevsk (141,000).

A line of cities lies along the Trans-Siberian Railway westward from the Kuzbas to the Urals; among them are Novosibirsk, previously mentioned,



The old Siberian road cuts through the vast taiga of Asiatic Russia. Pictured above is the section between the city of Irkutsk and Lake Baikal in eastern Siberia. (G. J. Demko.)

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its forests are more easily accessible from the long coastline, though they are at present no more developed than those of the Eastern Siberian Region.

The few manufacturing activities of this vast region, like the population, are centered in the major cities in the southeast. Light industries such

as food processing and textile manufacture are carried on in Khabarovsk in order to serve the regional market. Komsomol'sk contains a steel plant, but no blast furnaces for pig-iron production, and chemical industries based on petroleum piped in from Sakhalin.

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